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Mr. Goldman on Rat Extermination
and a Host of Reports on
County Health Work
also the standard Notes Sections

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VITAMINS AND CERTAIN ASPECTS OF THEIR RELATION TO PUBLIC HEALTH

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This authority warns against the commercial exploitation of vitamins. If people would recognize the real situation and eat more fresh vegetables, fruits, eggs and milk, they need not under ordinary circumstances purchase expensive and possibly inefficient proprietary articles, nor worry about vitamins. Natural sources for these products abound on every hand.

NEARLY ten years have passed since Professor Gowland Hopkins demonstrated the fundamental role played in animal nutrition by minute quantities of hitherto unrecognized food constituents which are now generally termed the vitamins. So important and interesting a discovery has not failed to attract an ever increasing amount of attention, since it was soon appreciated that the new knowledge would render necessary a modification of the theories of dietetics and today there are few who would deny the fundamental facts which the researches of Hopkins have established; on the other hand there appears to be a real danger that a misguided interest in the vitamins may cause a swing of the pendulum in the opposite direction.

Recent years have provided many examples of this exaggerated counterswing, which appears to be in many cases proportional to the importance of the original discovery, and in such cases the attainment of the equilibrium point at which the whole subject is viewed in its right perspective is much delayed. This is of course largely caused by the activities of the quack, and to a less extent by the well-meaning but frequently scantily informed pseudo-scientist, neither of whom has been slow to recognize the money value of radium, vaccines, and now vitamins. Popular articles on vitamins in the lay press are today being encountered on every hand, and the man in the street is beginning to ask what are these substances and what is their function in the body. Naturally the quack is

preparing to supply a certain amount of more or less accurate information together with an assurance that his particular proprietary article will supply all the necessary vitamins. I foresee that the magic word vitamins will be a gold mine for the patent medicine manufacturer unless the public is educated to rational conception of these substances and unfortunately the scientific literature is fast becoming choked with much that represents a very poor standard of work in this important field.

I have also an impression that the layman is gradually being induced to think that the vitamins are so many elixirs of life, and that the food of the gods is no longer a conception of fiction but an established fact. In this lies the danger, and it would be well if it were generally recognized that the vitamins, remarkable as they undoubtedly are, are no more essential to the animal body than are many other food components about which we know a great deal more. Everyone would appreciate the folly of an engineer who devoted his whole attention to the lubricating oil without any regard to the supplies of fuel or the renewal of the damaged parts of his machine. To enable the human body to perform its work satisfactorily the food supply must be adequate and well-balanced from many standpoints. First, the supplies of foods which may be burnt in the body as sources of energy must be adequate; secondly, building material either for construction or repair must be provided not only in sufficient amount but of the right type; thirdly, certain indispensable inorganic salts are necessary; and finally, other factors about which we know very little but which we term the vitamins, must be available in the required amount. It is doubtful if any one of these requirements can be truly considered as being more important than the others.

Research on these unidentified dietary constituents has led to a fairly satisfactory differentiation of three distinct substances, or perhaps three classes of substance, which all appear to act in extraordinarily minute amounts in assisting to maintain the nutritive condition of the animal body at a normal level. As an example may be quoted some recent experiments by Dr. Zilva of the Lister Institute who informs me that an amount of crude cod liver oil as small as 3 milligrams is sufficient to supply the daily requirements of a rat for one of the three vitamins, the factor A. Now I have been able to show that in an oil such as this the activity is not due to any known component, and that from the 3 mgm. must, therefore, be subtracted the weight of the contained fatty acids, glycerol, cholesterol, lecithin and pigments, which would leave only a very small fraction of a milligram to represent the active substance. Probably it is very largely this extraordinary potency of minute amounts which has caused the three recently discovered food factors to be grouped in one class and labelled the vitamins. On the basis of chemical and physical properties there is very little excuse for this classification, and indeed there are many arguments against it. It is now somewhat generally believed that the normal functioning of the thyroid gland is dependent upon a minute but regular supply of the element iodine in the food. If this association were not understood today it is probable that we should have the group extended to include a hypothetical thyroid vitamin.

Classification of these substances and speculation as to their action is not only useless but dangerous until laboratory experiments have solved the problems by accurate methods.

Meanwhile since the public is beginning to take an interest in vitamins, the question does arise as to how the present knowledge should be handed on to them; for it is important that the man in the street should know certain of the broad principles of the science of nutrition, no

matter how rough and ready may be his knowledge. The economic problems presented by the large towns today are many and complex, and it is doubtful if any single problem is of such vital importance as that of the food supply of the masses. Every day this food supply is becoming more and more artificial in character, and this process must necessarily continue as long as the populations of the towns increase and the web of their interdependent lives becomes more and more complex. The future of preventive medicine in Western Europe in the near future must be largely centered on improving the food of the people if any great progress is to be made. The complex of physiological reactions which constitutes resistance to disease is susceptible in an extraordinary manner to the influence of restricted diets, and there can be no simpler method of ensuring a high immunity for the people than by making it possible for them to obtain good natural foods at cheap prices.

It is perhaps in this connection that the relationship of the vitamins to the public health is most apparent. These substances, whatever their nature may be, are undoubtedly of very great importance to the health of the people, and especially of the infants and children. The prevalence of rickets, of bad teeth, of defective growth and of low resistance to infective diseases is a high price to pay for our departure from nature's rules.

Every reader is aware of the beneficial effects of a diet rich in fresh vegetables, fruits and dairy produce, and today there does seem to be an abundance of evidence in favor of the view that these effects are largely ascribable to the value amins. In fact Professor McCollum of Johns Hopkins University, Baltimore, Md., who has devoted many years of patient work to the study of nutrition and who has contributed largely to the advances which have been made in investigating the vitamins, has suggested that we should term milk and the green vegetables "Protective foods," and there is much to be said for his suggestion. Certainly everything possible should be done to increase the consumption of these foods and to render them accessible at cheap prices. I venture to think that no investment would yield the nation so rich a return as a vigorous campaign for scientific dairy farming with large supplies of cheap milk of good quality and a widespread extension of the allotment system, now unfortunately on the decline.

Many questions are being asked as to the effect of cooking on vitamins in foods and there is a somewhat general impression abroad that the usual processes of boiling and stewing destroy these dietary factors. Recent work shows, however, that only the vitamin C is liable to this destruction to any serious extent.

If one studies the average diets of the masses it is soon apparent that a large proportion of the population is subsisting on a food intake dangerously low in certain of the vitamins. The high price of dairy produce has caused a great fall in the consumption of butter with a corresponding rise in the sale of margarines which seldom, as at present prepared, contain as high an amount of the vitamin A as butter fat, although the majority of manufacturers are making genuine efforts to make good this deficiency, and there is also a decrease in the consumption of fresh milk in the poorer quarters.

Experiments made recently indicate that under ordinary circumstances the destruction during the usual cooking processes is not serious, except perhaps in the case of the anti-scurvy vitamin, which is apparently more liable than the other two. Nevertheless, it is advisable that the every day diet, especially of young children or of expectant or nursing mothers should contain as much fresh fruit, salads, milk and butter as is possible, for we have definite evidence that in order to provide a milk of high nutritive value for her offspring a mother must herself receive ample supplies of

those indispensable substances which are to be transmitted through her milk to her young. This leads one on to a renewed emphasis of the vital importance of breast feeding, and the percentage of women who fail to rear their children would be greatly reduced if their nutritive state were improved.

After all, the whole problem of the vitamins as they affect the diet of the people is merely one of common sense when the essential facts are considered. Our grandmothers knew naught of vitamins but they did appreciate the value of wholesome fresh food, and would have no other.

The question of ensuring an adequate supply of vitamin-rich foods to young children is perhaps the most urgent matter which the country will have to face very soon. We know that the effect of a deficient supply of these "building stones" in youth, especially in early youth, is very far reaching and may undermine the health in after-life to a serious extent. It is not sufficient to apply measures which will ward off the more severe consequences of the deficiencies, such as rickets and scurvy. The treatment must be deeper than that, and more recognition must be given to the borderland of disease which is today so much neglected.

I refer to the condition where the symptoms of ill health are not sufficiently marked to attract any particular attention. In the United States recently most remarkable results have been obtained with a number of children of this type. They were typical of the undersized, ill-developed, and mentally backward class of child encountered in such sadly large numbers in the large towns. Groups of these children were given extra milk every day at school whilst parallel groups were given an equivalent amount of food units (calories) in the form of bread and margarine. The acceleration in the rate of growth of the children receiving milk, and the rapid development of their previously stunted powers as compared with the control group was most striking. How these apparently insignificant dietary factors may profoundly alter the nutritive state of the body is also well illustrated by an example recently quoted by Professor Hopkins. In a well-known boys' school it was observed that the lads were not in their usual good health, that they were in generally poor form of lacking keeness both for work and games. The divergence from the normal state was so marked that an attempt was made to ascertain the cause. The sanitary state of the school was found to be excellent and all possible solutions of the problem were investigated without success until the dietaries of the boys were examined. It then appeared that they were receiving practically no fresh fruit or vegetables of any kind, and that formerly they had been able to obtain fruit from an outside source with ease. The deficiency in their diet was made good by the inclusion of fruit and like magic the normal health and vigor of the lads returned.

Examples of like character could be quoted indefinitely, many of them making most interesting reading; as does the story of how the health of the troops in the Eastern Theatres of War was much improved in the later stages of the campaign by cultivating large tracts of land behind the line to provide the men with vegetables, but the examples which have been given are sufficient to emphasize my point.

Perhaps one of the most important discoveries recently made in research on the vitamins is that the value of many foodstuffs as sources of these substances may be very variable, though as far as we are at present aware this is true only of foodstuffs of animal origin. The vitamins are synthesized only by plant tissues and their presence in foodstuffs of animal origin will depend on the diet of the animal. It is therefore not safe to assume that all samples of butter and milk have high vitamin value, since the

amount of these accessory substances present will depend entirely on the food of the cow. In collaboration with Dr. Zilva, Capt. Golding and Miss Coward, I have recently shown that the amount of the so-called vitamin A present in butter or lard may show marked variations traceable in the diet on which the animals have been fed, and similar observations have been made in the United States on the anti-scruvy potency of milks derived from cows fed on different rations.

There will be in my opinion a very important consequence of this discovery when the true significance of these remarkable dietary factors is grasped by the public health authorities. It will concern the establishment of a method for standardizing the vitamin content of certain foodstuffs, particularly of butter and milk. It will be obvious how relatively unimportant would be a quibble over a small difference in the percentage of moisture in a sample of butter, if the value of the butter as a source of the growth-promoting factor were neglected entirely.

Finally, I would like to draw attention to the question of proprietary vitamin preparations which are already appearing on the market in considerable numbers. It is going to be a very difficult matter for the public to distinguish the good from the bad amongst these products. Of those which have already appeared there are several which I have found to be entirely inactive, and which are therefore being supported by inaccurate claims; whilst others are more or less genuine in that they can act as sources of one or other of the vitamins. The aim of the patent food manufacturer appears to be put on the market a preparation for which it can be claimed that it supplies all three vitamins in a concentrated form. It is perhaps unwise to criticise this aim too severely, for there may be a real but limited need for such a product; as for example, to supply the requirements of exploration parties. The general attitude of the public towards proprietary vitamin preparations should be a guarded one, since it must be remembered that on every hand may be obtained cheap and natural sources of these indispensable substances.

If the people would only recognize the indispensability and irreplacability of the natural foods, and eat more fresh vegetables (watercress, salads) fruit, milk and eggs they would have no need under ordinary circumstances to purchase expensive and possibly inefficient proprietary articles, nor to worry very much about vitamins.

□

Vaccination and Anti-Vaccination in England.—A writer in the *International Journal of Public Health* states that vaccination in England has gone down, though not out. Most people regard it as they do the door marked "Emergency Exit" in the theatres. The anti-vaccinationists have been so active and this movement has become so strong that it is a national problem. The author advances the theory that if the medical profession had been more closely united in the cause of public health, beginning forty years ago, the public could have been better educated to realize the possible dangers of lack of vaccination. There is now, however, nothing to do but wait for a lesson which will bring people to their senses. London, for instance, offers a field for a disastrous outbreak, which would be extremely difficult to cope with. The English problem is a good example of what the United States can expect unless health officials are on the alert to combat the false doctrines of the anti-vaccinationist.—Stephen Paget, *International Journal of Public Health*, March-April, 1921. *(J. A. T.)*

SANITARY INSPECTION—A REVIEW

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In a rapid survey of the field of sanitary inspection, the author suggests shifting the emphasis by health officers from the legal and technical to the human aspects of the problem. By outlining the status of each he concludes that the technology receives more attention than do the people from many public health workers. It should be kept in mind that permanent health improvement must be predicated on the awakening of a sanitary conscience.

"EDUCATION is better than legislation. It is slower, but surer." —C. V. Chapin.

1. The Legal Aspect of Sanitary Inspection.—In order to define the principles of law upon which the activities of sanitary inspection rest, it is necessary to have clearly before us what the function of sanitary inspection is. A fairly definite conception of this function may be obtained from the knowledge that, in almost all government action concerned with the preservation of the public health, the idea of nuisance has assumed an important place. The field of activity of sanitary authorities, therefore, has been developed through legal precepts, which have restricted this field to the investigation of nuisances. This restriction is, of course, not a narrow one, since it permits of the control of practically all those elements which affect the health of the community.

A nuisance may be defined as any condition which annoys or gives trouble. In the more restricted phraseology of the law, it becomes anything which is detrimental to persons or property. The importance of a nuisance is determined usually by the number of persons whom it may affect. The simplicity of this fundamental principle of the law of nuisances is apparent. The complexity of current legal controversies into which local health authorities are frequently led rests more upon the inability to allocate the condition in question to the class of nuisance, than upon the failure to motivate the wheels of the courts.

A mere definition of terms, however, does not clarify sufficiently the legal concept of nuisance which every health officer should have. We must employ some yardstick, some measure, however qualitative, other than that of the chronic pessimist to whom everything and everybody is a nuisance, or of a Ruskin who viewed the entire industrial development as one despicable, though massive, nuisance. For the purpose of our present discussion the simplest summary of nuisances resolves itself into two contrasting types. Of the first type, the so-called legalized nuisances are to be considered. This class rests for its sanction upon "the principle of the greatest good of the greatest number." Acts which come under this sanction are protected usually against indictment or civil suit. For, although legislatures may not arbitrarily violate rights of private persons, they may and sometimes do secure a public benefit, even though at some sacrifice of individual comfort and convenience.

On the other hand, legislative enactments often come to our aid through the authorization to local bodies to declare acts, practices or things to be nuisances.

Such nuisances are the complement of the first type mentioned above and are designated as statutory nuisances. Legislative authorization at once supplies the health officer with an asset greater than that already granted him by the precepts of common law. Statutory nuisances so-called have their origin in the principle that legislatures have the right to enlarge at any time the category of public nuisances. This legal principle has been one of the saving clauses in the development of a machinery continually growing to meet the needs of an advancing sanitary science. For what is not a nuisance today, in our present state of knowledge, may become one tomorrow, as the unknown is further probed. Legal support, though delayed, usually has followed closely upon the emergence of scientific truths.

Two additional questions remain to be answered in our survey of the legal background of sanitary inspection. These are concerned with the responsibility and the remedies for nuisances. Here again, stripped of its professional phraseology, a simple axiom appears, namely, he is responsible for a nuisance who either creates or continues it. It is hardly desirable on this occasion to attempt to illustrate the varied possibilities in such cases as joint liability, liability for letting premises with a nuisance thereon, for the continuance of a nuisance, the liability of a tenant, municipal responsibility for nuisances, etc. When such cases occur in the routine activity of the health officer, their consideration rests upon the principle already enunciated. The difficulties of fixing responsibility for nuisances are dependent upon local conditions and need not be discussed at this point.

With a nuisance defined and the responsibility therefor fixed, what legal recourse is available for the determination of a remedy? Fortunately sanitary law presents several different kinds of remedies based upon private and public action, under either civil or criminal procedure. These may include either suit for damages, injunctions, or fines or combinations thereof. Since health authorities frequently adopt the procedure of a suit for the collection of a penalty for the violation of a health ordinance, it is apparent that the strength of such ordinances lies in their penalty clauses. These penalties, of course, must vary with the importance of the offense, for if they are too heavy, though impressive, they are rarely enforced.

Now that the basic principles of sanitary inspection law have been outlined, though crudely, it would be interesting to learn what direction sanitary legislation should take in the future. Are our health laws too general or too specific? Should future laws accurately define nuisances, a procedure which some co-workers maintain the scientific knowledge of methods of prevention of disease now makes possible? Are general powers necessarily coincident with uncertainty of action? Do local health officers find it easier to enforce specific acts or generalized laws? Do necessary health reforms wait upon crystallization of support in the form of statute or law, or upon that underlying and more elusive element—public sentiment, which frequently is lacking even when law exists?

In the problems of sanitary inspection, however, the legal aspects, though interesting and often puzzling, form only a part of a survey. For the legal power to act is useless in the absence of the technical apparatus with which to inaugurate such action and without the scientific data for the recognition and elimination of the objectionable thing or condition. It is clear, therefore, that for sanitary inspection to be effective it must be built firmly upon a definite technology, upon a series of scientific facts and observation. Of what then does this technology of sanitary inspection consist?

2. The Technology of Sanitary Inspection.—Sanitary inspection needs, for the successful accomplishment of its

purpose, more than pure technique or a method of activity. It demands rather a technical background, a systematic knowledge of scientific facts, an array of data selected from the laboratory of experience. (It requires above all, of course, on the part of the persons delegated to carry out its duties, an unusual equipment of tact, good judgment, common sense, and a sense of proportion. A consideration of these more personal attributes is deferred to a later section of this paper.) Has present-day sanitary inspection this technical background, this scientific basis? To answer this question, we must analyze carefully the content of the technology of sanitary inspection. For such a purpose, we may subdivide our activities into two fields, one concerned with extra-mural and the other with intra-mural sanitation. In the first case, we are concerned with the problems of the outdoors, in the second with the indoors. Whether these locations have reference to house, school, canning house, construction camp, mining shack, or hospital is of little import, since the primary technical facts in each instance are the same. The sanitation of the environs of the school, in so far as the elements of design or construction are concerned, is the same as that of the mining shack. An evil-smelling privy is the same whether it stands in front of a hospital or in back of an Italian's shanty. The scientific knowledge which will cause a transformation in the one, will result also in a modification of the other. Likewise, the technical facts which we use in the solution of the problems within the house, apply with equal force to those within the school or hospital. Changes in detail there may be, but fundamental data as to material sanitary problems are not dependent upon kind of property, but upon nature of problem. Therefore, in succeeding discussions, where reference, is made, for example, to ventilation, to sewage disposal, to plumbing, the conceptions and the problems should be thought of in general terms, rather than in specific application to school house or to construction camp.

To sanitary inspectors, the sanitary privy is at the same time a bane and a delight. Without it, he is jobless and with it he is nervous. The sanitary inspector hence appears as a new Diogenes in search of an honest privy. His utopia would be that spot upon which rests the "practical sanitary" privy. Dr. Stiles has recently drawn up general specifications for such an inspector's delight.[1] They are excellent enough to repeat at this time.

"From the standpoint of the average person involved, the word 'practical' means that (1) the original installation must cost little or nothing; (2) the privy must require no upkeep; (3) it must require no cleaning; (4) it must be without undue odor; and (5) it must be 'fool proof.'

"From the viewpoint of the health officer, a privy to be practical must be one: (1) which he can induce landlords to install; (2) which must be in keeping with the pocketbook of the poor; (3) which must not inhibit subsequent adoption of a sewer system; (4) which must be within his budget to administer; (5) which must not make too many enemies in the population; (6) which must not raise too much political antagonism; (7) which must last as long as required; and (8) for which he can obtain labor if it requires scavenging."

Is there such a privy in existence? Will there ever be? And, lastly, do we need one? In examining Dr. Stiles' specifications, and they represent those of most of us, we may distinguish two requirements, one of which is concerned with design, construction, and operation and the other, and more important one, with people and their mental attitude. The first only is our present concern, the second will be discussed later. It is believed we are safe in assuming that the elements of privy design, construction and maintenance, are at least theor-

etically definitely known. It is possible to design a privy anywhere, which under reasonable conditions will give satisfactory service. It is true there are such places as China where the technology of individual sewage disposal is but little understood, because of peculiar economic and racial conditions. But for general American problems of rural sewage disposal, a technical solution of fair character exists. It is well to emphasize this point in order to clear the path for what is to be said later. The fact that it is often difficult if not impossible to obtain satisfaction from existing types of privies should be ascribed, it is believed, not to fallacies of science, to failures of design, but to more dangerous failures, those failures to familiarize human minds with structural panaceas.

It seems hardly necessary to enumerate a series of types of sanitary privies in order to illustrate the technical advance in their design. The outstanding feature of many symposiums on sanitary privies, where privy design is shuttled back and forth, appears to me to confirm the diagnosis given above, that the problems of sanitary inspection are after all not those of materials, but of men. It should not be understood, of course, that the theme of this discussion rests upon the hypothesis that the technology of sanitary inspection is complete. It is not and probably never will be. But the health officer surely has available already a mass of facts, of figures, of theories to guide him in the technical performance of his duty, where this is concerned only with the class of nuisance. The knowledge of what to do technically in this field seems to have gone far ahead of the knowing how to do psychologically.

This feeling has its source in the observation of the narrow clinging to simple technical solutions at the expense of broader viewpoints and may be illustrated by reference to a particular problem. The literature and discussion of privy installations have always placed considerable emphasis, particularly in the South, upon the constructions of large numbers. Even in communities of 5,000 people or more, intensive privy campaigns still hold sway. A natural question often arises as to why such enormous makeshifts are still employed. Is it not often extravagant and foolish to install 2,000 privies in a community where a complete sewerage system would be cheaper, saner, and cleaner? In many instances, it is not realized that the total annual cost to individual homes for decent scavenging and construction and maintenance of privies is as great or greater than that due to the installation of a modern sewerage system. Some actual figures may demonstrate this fact more clearly. The following annual costs for scavenging were obtained from some of the smaller communities in Maryland. They are:

Brentwood	$ 3.00 to $12.00
Capitol Heights	4.00
Cottage City	6.00 to 12.00
Garrett Park	12.00
Kensington	6.00

These costs represent examples of night soil collection and disposal per house for can type, surface type, and cesspool installation.[2]

Contrast with these figures, the situation in these same communities after they have been combined into one district,[2] when the gross annual cost to a householder, with a fifty foot lot, a $4,000 house, for 40,000 gallons of water service and the collection and disposal of all sewage, with a complete water and sewerage system, varies from only $15 to $20 per year. And this cost appears in a sparsely built suburban territory, where conditions are least favorable to low costs of water and sewer service. It would be interesting to learn whether in such extensive privy campaigns as here referred to any thought has been given to preliminary cost estimates of privies against sewerage system, where first costs, replacements, and general operation are

taken into account. In many instances, such comparisons do not seem to have been made.

By way of digression, it is of interest also to call attention to the rarity of the idea of combining a number of communities for sanitary purposes. Here, too, local technical solutions again overshadow the more important comprehensive improvements which the formation of sanitary districts call forth. For those health officers from territories, where it is believed the Sanitary District idea has not yet made much progress, the desirability of consolidation of towns for health purposes cannot be too greatly emphasized. Such combinations mean savings in cost and in lives. Their simplicity of development may be illustrated by sketching a district, which just now is in the very early stages of initiation, but whose proposed organization is founded upon one already in existence.[2] It has not yet progressed beyond the point of technical study. This particular example indicates the wisdom of considering neighboring communities from a broader standpoint than that presented by town limits.

In the Georges Creek Valley in the western part of Allegany County of Maryland, there are to be found about fifteen communities stretched along the Georges Creek for a distance of approximately 20 miles. These communities vary in size from several hundred to 7,000 persons. From one end of the valley to the other there lives a population of about 30,000. No single one of these communities has sufficient funds to provide itself with adequate water supply and sewerage facilities. The installation of sanitary privies and makeshift water supplies in these individual communities does not offer an economical or satisfactory sanitary solution to the problem. For this reason, it is the intention of the Maryland State Department of Health to initiate the formation of a Sanitary District to embrace all of the above communities. Such a consolidation of communities has already been successfully accomplished in the Washington Suburban Sanitary District, previously mentioned in this paper.

Where such combinations of projects are possible, and they are frequently apparent in places where each town is struggling by itself to install and maintain a privy system, the financial burden upon individual property holders is materially reduced. By proper distribution of cost, the sanitary improvements brought about by district methods result in much less expense than the average householder uses annually for minor amusements. By p r o p e r l y allocating costs through an equitable system of payments, which need not be gone into here, the opposition in a series of communities to supposedly enormous expenditures of several millions of dollars for water supply and sewage systems often disappears. Such comprehensive schemes as outlined above may often be substituted for disconnected and isolated community privy treatment.

In the case of intra-mural or indoor public health technology, the development of standards has not been so complete as in the outdoor science. The elimination of objectionable conditions within the school, hospital or home is usually predicated upon empirical facts and ill-tested hypotheses. Even today the physiological bases for good, bad or indifferent ventilation are incomplete. This situation is reflected clearly in the difference of attitude exhibited by most health officers toward ventilation problems as contrasted with problems in the disposal of human excreta. Today the chemical theories of bad air still persist, for as late as 1918 a health officer made a lengthy report of moving picture ventilation in which carbon dioxide standards predominated. Although it is gradually being realized that ventilation is concerned with physics rather than chemistry, with air movement rather than air content, and is dependent upon cutaneous rather than physiological reactions, yet

the complete understanding of these processes is so far removed that, in this case, the health officer must wait upon technical advance for the complete solution of his problems. Fortunately the absence of such complete solutions does not retard the development of sanitary activity, for a sufficiently large body of facts, though incomplete, are at hand for support.

In the same way, housing regulations as to standards of space and light leave something to be desired, in view of the fact that the effects upon the human organism are problematical. When we pass from these more complex problems of mental and physical reactions, to the more simple question, for example, of plumbing, a similar lack of basic facts appears. It is important to contrast the states of technology of indoor and outdoor environmental factors and to evaluate their effects. For it must be borne in mind that, in the case of the outdoor environment, the sanitary inspector's activity has been longer, in time, than with indoor conditions. The demand for an outdoor technology has been greater during a longer period. Hence its development has been more rapid and more complete than that of the indoors, where the effects of space, light and air conditions have only comparatively recently been emphasized from the standpoint of health. That this diagnosis of the inadequacy of current scientific data on indoor environment is probably correct will appear, for example, from a random examination of a series of housing regulations as to floor space and air content per person. It would be interesting to learn how the standard regulations, for example of temperature and humidity are determined upon by different states, municipalities or counties.

The above general and necessarily brief sketch, of the second phase of sanitary inspection, the technical, brings us to a third and most important division of the subject, namely:

3. The Philosophy of Sanitary Inspection.—As a particular field of sanitation develops, it is often of value to view its problems in retrospect in order to plan their solution for the future. In many discussions of sanitary inspection this failure to review and to plan, upon the basis of history, results in immeasurable loss to all concerned. The problems of sanitary inspection have much in common with those that have arisen in other fields. Their analysis should lead to a philosophy of action, just as the analysis of a problem of calculus leads to its solution. Let us attempt such an analytical study.

The problems which are under discussion have passed or are still passing through one of three stages. A primary stage of recognition, a secondary of technical development, and a tertiary of activity of application of the solutions developed in the second. Before sanitary inspection could exist, it was necessary for people to recognize that there were problems of excreta disposal, of bad water supply, and of malaria control. As long as the memory of man will go, the problems of sanitary inspection have been accepted. As our knowledge advances, the recognition of new problems of public health will advance. Following close upon the recognition of problems, there comes their technical solution. As the writer has already attempted to show, these technical solutions will be in process of study forever, but enough are already available for the advent of intensive application. It is apparent, therefore, that, although each of these three phases of sanitary inspection may, chronologically, merge into each other, yet we may safely conclude that today only the third phase, of application, is of prime importance to the practical health officer. The public at large has not yet reached completely the first phase, that of recognition. The research student is submerged in the second, the technical; while the health officer, the advance guard,

should enter the third stage to bring about the adoption of scientific methods for the elimination of disease.

Now that we have definitely located or oriented ourselves in our own microcosm of sanitation, let us proceed upon our task of formulating a philosophy, a future policy or basis of sanitary inspection. In the past we have been concerned with standards of design and construction. Our mental energies have been focused upon problems of materials, of things, of structures. At many times, in our haste to formulate new designs, to install more privies, to make more housing regulations have we not forgotten our real standards? How often do standards of design conceal the only standards worth while, those of accomplishment? And here it is well to recall that the velocity of sanitary privy construction does not always measure the amount of fruitful work accomplished. For construction and use, alas, are not synonymous. The literature of sanitary inspection is filled with excellent and valuable pages concerned with the privy, but how little do we see of the analysis of the people who are to use them! In the health officer's interminable search for the one best privy, does he often stop by the wayside to ponder upon the frailty of human nature? Most often he worries about the weakness of the E type in contrast with the A or the B. It is by no means a strange or startling statement to make at this time that after all the type of privy means little or nothing in the progress of sanitation. The human type is the important element and not the privy, or the manure pile, or the fly. These latter elements are environmental only. How useless it is to attempt to control these, when these in turn are controlled by man, who alone is not subjected to study, to analysis, to minute design and re-design, to modification after modification. Attention is showered upon the material, while the family remains an appendage, an incidental.

As long as the sanitary inspector views man as a stubborn obstacle standing in the way of sanitary progress, rather than a living organism blindly groping for brilliant sunlight, just so long will real progress be slow, difficult and disheartening. Just so long as the engineer permits the slope of a sewer line to assume more importance in his calculations than the weaknesses and the instincts of human beings, that is how long our road will seem dark and dreary. For after all, are sewer lines and privies and plumbing codes our only concern?

Whether we believe in trade unions or open shop, in bolshevism or monarchy we must recognize their existence if we are to carry forward our work. The day is definitely passed when the only factors in sanitary inspection are legal and technical. To this category must now be added a new phase, the human side. The old science, to paraphrase Dr. Osler, must be linked with the new humanities. We have long recognized the primary elements of design, now we must begin to study just as closely the primary instincts of people. Our progress depends upon the recognition of the existence of factors other than those of the science of structures.

It has been a source of curiosity to the writer as to how often so-called privy campaigns are predicated on a study of the psychological, physiological, and economic conditions of a community. Are there any instances where the nature of peoples has predetermined the line of attack, rather than the existing standards of design? Does the sanitary inspector vary his privy design for Pole, Jew, Irish or Italian? Obviously the demands of these races are different, their reactions are varied, and their tempers innumerable. It is difficult to expect centuries of custom to give way to two weeks of Yankee privy campaign, no matter how well planned and conducted. If privy design is not varied, and human nature is untouched, why should failures surprise? We are rarely disconcerted if a single suit of clothes does not fit the stalwart

Swede, the slim Italian, or the anaemic Jew.

When the lowly "polack" of steel town appears as human brother, or the coal miner as something else than a war-time plutocrat, when intolerance gives way to understanding, perhaps then some of the thousands of privies built will be used for something other than coal bins.

When this socialization of viewpoint appears, when society becomes more than a mere hunting ground for nuisances, then it is believed a newer and better philosophy of sanitary inspection will appear.

ADDENDA

1. Practical Types of Sanitary Privies, by C. W. Stiles, The A. J. of PUBLIC HEALTH, Vol. 10, No. 1, January, 1920.

2. The cost data here presented have been obtained from the "Report on the Advisability of Creating a Sanitary District in Maryland, Contiguous to the District of Columbia" to the General Assembly of Maryland by the Washington Suburban Sanitary Commission (Chief Engineer, Robert B. Morse), on January 21, 1918.

The Washington Suburban Sanitary District embraces the suburban areas in Montgomery and Prince George's Counties in Maryland, contiguous to the District of Columbia. The District was incorporated by the State Legislature (Chapter 122 of the Acts of the Maryland Legislature of 1918) for the purpose of the establishment and operation of adequate water, sewerage and refuse disposal systems. This District has an area of 95 square miles and a population of nearly 50,000, which is rapidly increasing.

The administration of the District, with respect to the control of water supply, sewerage, and refuse disposal systems, is in the hands of a joint commission of three members. During the period from May 1, 1919, to April 30, 1920, approximately $512,000 has been expended by the Commission for public improvements. The Commission has the power to issue its own bonds.

3. The following texts were freely drawn upon for the section dealing with the legal aspect of sanitary inspection. The authors of these texts are responsible for whatever is accurate in the discussion. If the exposition departs anywhere from truly legal principles, I alone have the burden to bear.

(a)—J. Scott MacNutt, A Manual for Health Officers. New York: J. Wiley & Sons.

(b)—H. B. Hemenway, Legal Principles of Public Health Administration. Chicago: T. H. Flood & Co.

□

The Nurse in the Virgin Islands.—The value of the Public Health Nurse is appreciated in newest America as is shown by an informative article on "Public Health Activities in the Virgin Islands," by Hannah M. Workman.

Here are islands lately acquired by the United States which during the Danish occupancy had hospitals but no trained nurses. The disposition to accept modern methods has long been present there and so, when the Americans assumed control, one of the first requests was for American nurses.

Since 1917 nine carefully chosen navy nurses have been at work under supervision of American Naval Medical men in the Virgin Islands. In addition to these nurses, there have been comparatively recent appointments of Red Cross workers. How eager the people are for the latest developments in public health work has been shown, though this is not mentioned in the article, by the visit of one of the nurses at the headquarters of the Mothercraft movement in Massachusetts to secure material and literature for teaching girls and young women the proper care of babies.

This progressiveness in studying advanced methods in the United States is illustrated in the islands, by the admirable hospitals and classes for training nurses; by the infant welfare department; by the public health nurses and the general sanitation and cleanliness which are remarkable for a tropical country.—Hannah M. Workman, *Public Health Nurse*, April, 1921. *(M. B. D.)*

WHAT HEALTH OFFICERS CAN DO TO PROMOTE RAT EXTERMINATION

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Rats are a civic reproach and a sanitary menace of the first magnitude, not merely an unavoidable economic burden. Health officers everywhere must be active because civilization demands the coöperation of all forces in the removal of the rat menace to health and well-being. This paper outlines well-digested plans for efficient warfare on the rat.

WHILE the rôle of rats as carriers of disease is only partly determined, sufficient is known to mark these animals everywhere as perhaps the greatest single menace to the health of the human race. From their original Old World habitats they have accompanied man in his migrations, and have infested his habitations or their vicinity in spite of measures taken against them from time to time, until they now are firmly intrenched as human parasites, and they maintain this repugnant relation with a tenacity truly remarkable.

ENDEMIC PLAGUE AN AMERICAN MENACE

The best-known rat-transmitted disease, bubonic plague, has caused the deaths of millions of people since the beginning of the Christian era. This disease carried from endemic centers in the Old World manifests itself by periodic and alarming outbreaks, and evidences a tendency to form endemic centers of contagion even in America. Bubonic plague is ordinarily transmitted by fleas which have become infected from rats.

Aside from bubonic plague, rats are known to be involved in the transmission of trichinosis, infectious jaundice, and rat-bite fever, and owing to their filthy habits they are potential agents in the distribution of many other diseases, their exact relation to which remains an important field for laboratory investigation. Infectious jaundice is probably due mainly to rat contamination of food, except possibly in certain Asiatic countries where some recent evidence suggests that poorly-shod natives, especially in coal mines, also receive the spirochætal infection directly through the skin. This disease has been generally associated with armies holding rat-infested trenches along stabilized war-fronts, hence the name "trench jaundice," also commonly applied to it.

Bubonic plague, or a plague-like disease, has been communicated probably through use of the same burrows to ground squirrels (*Citellus beecheyi*) and wood rats (*Neotoma fuscipes*) in California, and the infection is reported* to have been detected in a rice rat (*Oryzomys palustris*) at New Orleans. The ground squirrels and wood rats are widely distributed, especially in the western United States, and the rice rats occupy parts of the Mississippi Valley and much of the Atlantic seaboard from Texas to New Jersey. It should be borne in mind that the house rat, along

*Williams, C. L., Amer. Jour. Public Health, vol. 10, No. 11, p. 863, November, 1920.

with the wood rat, the rice rat, and various other indigenous American forms, belongs to the murine family, and if plague among these animals is allowed to progress unchecked it may also reach our woodchucks (*Marmota*), which with our numerous ground squirrels are closely allied to Asiatic rodents believed to be natural enzoötic hosts.

Under ordinary conditions rats tend to keep pace in numbers with the increase and congestion of the human population, an aggravating modern factor. Unless house rats are controlled the probability of the establishment in America of plague centers very difficult to eradicate and from which epizoötic outbreaks would lead to wide-spread human mortality seems reasonably certain.

LIFE HABITS OF RATS

Some knowledge of the life habits and practical methods to be employed in the control of rats is essential and should be acquired by every health officer. In fact instruction in this branch might well form a part of the curriculum of every public school, until rats are no longer commonly regarded as an unavoidable evil.

Two species of rat, somewhat different in habits and both potential carriers of bubonic plague and other diseases, are to be dealt with. These are the brown rat (*Rattus norvegicus*) and the black rat (*Rattus rattus rattus*), of which the so-called "roof rat" (*Rattus rattus alexandrinus*) is merely a variety. The brown rat, usually the more important of the two in America, is, excepting in certain individuals in a peculiar black color phase, readily distinguished from its congeners by general brownish color of back, in combination with larger size, more robust form, smaller ears, and relatively or actually shorter tail. In adult brown rats the hind foot usually measures over 40 mm., and the tail is shorter than the head and body together, while in the black species the reverse is true. The brown rat is largely a burrowing animal and lives mainly near the ground, especially in the vicinity of water, where its holes and well-beaten paths are often much in evidence; the black species, a more expert climber, is more apt to inhabit the roofs or upper floors of buildings, and is usually the more abundant of the two aboard ships. Where food supplies cannot be isolated the importance of killing the early arriving individuals by any possible means will become more evident when it is remembered that the period of gestation is only three weeks, and that a female brown rat three months old is likely to bear and may be expected to produce 6 to 10 young at a birth under ordinary climatic conditions. Litters, however, commonly contain more than ten. Rats probably produce ordinarily from three to five litters in a year, but where food and shelter are abundant the number of litters is increased.

Computations based on the assumption that rats breed only three times in a

FIGURE 1

One of thousands of well-defined rat paths leading from garbage dump into grain fields. By the number of such paths and holes with which they connect, the health officer may estimate the degree of infestation.

year, with average litters of 8, divided equally by sexes, with no deaths, reach the astounding total increase for a single pair and their progeny in three years to over 3,900,000 individuals. The mortality rate is obviously high or rats would soon literally overrun the earth.

RAT PREVENTION

All efforts to control or exterminate rats should be aimed at one or both of the two vital elements, food and shelter. Eliminate either of these completely and the problem is solved. Reduce either of these elements materially and a corresponding diminution of the rat population normally results. Rats are omnivorous and are soon attracted to any accessible food supplies, and if shelter is also available they very quickly build up large colonies.

Much has been written on modern rat-proofing methods, and these cannot be too strongly stressed, but only the general principles involved need be stated here. Traps, poisons, and other effective agents in rat destruction will be of little permanent value in most localities unless food warehouses are so constructed as to bar the entrance of these animals, and food supplies made inaccessible everywhere. Rats kill young chickens, and for this reason and to eliminate shelter for them, poultry houses, barns, and all out-buildings should be carefully closed to them. No garbage or trash piles should be allowed to accumulate in the vicinity of stores, markets, or human habitations, and loose material should be kept cleared away as far as possible. The rat-proofing of structures should precede or at least accompany all rat-killing campaigns.

In one of our great army depots in France millions of dollars' worth of supplies attractive to rats were stored in temporary structures, where under stress of war conditions rat-proofing was out of the question; but from the beginning the policy was adopted of keeping the ground as clear as possible in and about the buildings and of turning over at intervals the great stacks of food supplies. This depot was located in the interior of the country with no heavily infested area near, but the district was well settled and rats in usual numbers were living about neighboring farms. A few, as might be expected, entered the depot of their own accord, and others were carried in with freight shipments from the base ports and in cars returned from the front. Although food supplies were easily accessible, the number of rats gaining a foothold in the depot was almost negligible. The importance of eliminating rat-harborage was strikingly demonstrated.

EFFICIENCY ESSENTIAL IN RAT CONTROL

The vital importance of eradicating rats being obvious from the sanitary as well as from the economic viewpoint, the practical problem is how to deal with the pest most effectively. All health officers, Federal, state, or municipal, should devote especial attention to rats, and be prepared to deal in the most efficient manner with the varying conditions encountered.

As a preliminary measure rats should be prevented from landing at the ports. All vessels should be fended off at least 6 feet from docks; all shore lines should carry metal discs 4 feet in diameter, to block the passage of rats; gangways should be raised; and other shore connections severed as far as possible at night. In addition all ships and cargo should be thoroughly treated as often as practicable with hydrocyanic acid gas or some other effective fumigant. In spite of all precautions, however, some rat stowaways are sure to find their way ashore, but by eliminating food and shelter, conditions should be made as uncongenial for them as possible.

The methods to be adopted in each locality or rat-infested center should be based on local examinations, as a physician diagnoses cases, and the remedy prescribed in accordance with conditions prevailing. Rat warfare is costly and

much time and money have been wasted in misdirected or inefficient methods of attack. Success will most readily be achieved where there is proper organization and where concerted efforts are based on definite plans persistently carried out. Little of permanent value will result from even a wholesale destruction of rats in a given locality if the rat-proofing of premises is neglected and neighboring areas remain heavily infested.

Rat campaigns should be organized and directed by sanitary officers familiar with the best methods and thoroughly trained in such work, all governmental agencies coöperating as fully as possible. These officers should be assisted by a corps of the most competent men obtainable, and provided with the necessary supplies in ample quantities.

The first step should be the division of the area to be treated, whether a city, county, or state, into districts the size of which will vary with local conditions and available personnel and equipment, the total area to be the largest that can be effectively handled as a unit. District leaders should be then assigned and a district organization perfected, the men employed in destruction work being chosen with due regard to fitness. In general they should be men with a natural aptitude or liking for such work.

FIGURE 2

City garbage dump maintaining thousands of rats surrounding incinerator that proved to be a failure owing to poor construction.

At the same time a publicity service or educational campaign should be carried on by means of posters, through local newspapers, and with the aid of well-informed public speakers if possible, the

FIGURE 3

Another view showing one day's accumulation of refuse and garbage in same place. From this dump thousands of rats invaded adjoining grain fields and many passed on into the city seen in distance, until controlled by use of barium carbonate under the direction of the Bureau of Biological Survey.

aim being to focus the attention of the public on the objects of the work, and enlist local interest and coöperation, especially in the formulation and enforcement of the necessary ordinances covering garbage disposal and the construction and rat-proofing of buildings.

The work once begun should be prosecuted vigorously and thoroughly, rat-proofing, elimination of all rat shelter, care of garbage, trapping, and poisoning operations being carried on simultaneously at as many points as possible, covering in a general way the entire area. There is a popular prejudice against the use of poisons, but where rats are present in large numbers recent experience has indicated the advisability of their employment under properly controlled conditions. The use of gases also may safely and advantageously be resorted to in places, the object being to neglect no destructive agent that will facilitate or hasten the extermination of the enemy. The bacteriology of plague and other rat-borne diseases should be thoroughly understood and a standardized technique covering the determination of these developed by a competent staff. Laboratory studies should be systematically carried on, especially in every large seaport in the country, in order to anticipate epidemics and furnish a record of progress in dealing with this phase of the work.

SYSTEMATIC TRAPPING EFFECTIVE

One of the best-known methods of destroying rats is systematic trapping, in the direction of which every health officer should be an adept. This means usually the placing of traps in considerable numbers and in accordance with definite plans. If the area to be covered is large and the rats numerous thousands of traps may be required. Much time and effort is frequently wasted in desultory trapping at poorly-chosen points, or with traps of an ineffective type. In a properly organized campaign, traps will be set at fairly regular intervals in places most likely to be visited by rats, depending of course upon the degree of infestation. In general these will be at or near entrances to buildings, or to rat burrows, along walls, or wherever there is evidence that rats are in the habit of passing.

Where traps are being placed in large numbers, some system of marking their location, depending upon local conditions, should be adopted in order to save time and the loss of traps. In or about warehouses numbers marked in chalk may often be used, and traps should be visited in the same order in which they were set.

The use of cage traps may be desirable in places in order to secure material for laboratory examinations, but for general destruction work snap traps of several designs are much more effective. The particular type of snap trap chosen should be one in which the trap will be sprung by a rat in passing and the animal caught regardless of whether it was attracted by bait. This is best accomplished by selecting a trap combining some means of fastening bait with a low, fairly broad treadle or an elevated wire released by the animal in passing underneath. Barrel or pit traps and similar devices may be used to advantage for catching rats under special conditions, but they are usually clumsy in operation and unless the animals are very numerous the results are apt to be disappointing and out of proportion to the efforts expended.

A striking example of results that may be attained by systematic trapping was furnished at the Bush Terminal Warehouses in Brooklyn, New York. These warehouses, extending for a length of 11 city blocks, with a depth of from one to three blocks, were taken over by the Government for war purposes and were found to be infested with thousands of rats. At it was planned to use them for carrying a 30 days' supply of subsistence and clothing for the overseas forces, the need of protection against rats was obvious. At the request of the quartermaster officer in charge, a representative of the Bureau of Biological Survey, U. S. Department of Agriculture, was detailed in January, 1918, to inspect the buildings and to recommend methods of

controlling or eradicating the rats. Six or eight gross of snap traps recommended were purchased and four men set to work placing them, with the result that each day's catch was at first more than a barrelful. At the end of the year the officer reported that the rat-catching campaign, persistently carried on, had reduced the rats to a negligible number and an inventory of supplies on hand when the warehouses were 90% filled showed no damage by rats except an occasional gummed label gnawed from the outside of a box. He estimated that between 35,000 and 50,000 rats had been killed and that the military stores destroyed had not exceeded $50 in value.

VALUE OF POISONS

A popular prejudice against the use of poisons in killing rats is well founded, as the danger of accidents cannot be overemphasized. With supervision by health officers familiar with their effects, however, the use of certain poisons under favorable conditions is strongly recommended, owing to the large number of animals that may be easily and quickly destroyed. And poisons may often be very advantageously employed at the beginning of a rat-killing campaign which is to be continued by the use of traps.

It often has been the experience of health officers that many poisons, when mixed in killing proportions with food, are readily detected by rats and that the baits are apt to be avoided. The epicurean tastes of rats are well known, and the problem is, therefore, to find baits sufficiently attractive to insure the ingestion of a fatal quantity of poison.

Barium carbonate is apparently less repugnant to rats than most poisons, and when properly administered is exceedingly effective. It possesses also the advantage of cheapness, and if reasonable care is exercised there is little danger from it to human life. Owing to these marked advantages over most other poisons, its general use, wherever warranted by local conditions, is advocated in bulletins containing directions, issued by the Bureau of Biological Survey, U. S. Department of Agriculture; it is also being exploited commercially on a considerable scale.

The effectiveness of barium carbonate as a rat poison may be judged by some recent commercial demonstration work carried on with the consent and under the supervision of the local health officer in Center Market, Washington, D. C., which covers an area of about one city block. The bait employed was composed of a finely-chopped and very wet mixture of oatmeal, chicken entrails, fish heads, and cooked sweet potatoes, to which was added powdered barium carbonate amounting to 15 to 20% of the whole. At closing time on the evening of October 10, 1920, a tablespoonful of this prepared bait was placed on each of about 500 small wooden butter trays, which were distributed on the floor, where rats are likely to pass, throughout the market. Next morning* 48 dead rats were picked up and photographed, and while 37 others are known to have been killed, the record of the total number destroyed is doubtless incomplete. A significant feature of this work was the fact that the baits were sufficiently attractive to rats, although placed in the open market near easily accessible general food supplies of many kinds.

In connection with the use of barium carbonate, the desirability of placing very wet baits is emphasized, as they seem to be more acceptable in this condition, and some of the poison adhering to the feet of rats is apt to be licked off and swallowed.

Phosphorus is another poison which has been employed successfully in the hands of health officers in rat-killing campaigns, but unless skillfully prepared it may be highly inflammable and therefore dangerous, especially to wooden construction.

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*A picture of this killing of rats has been presented in the *News Letter* for February, 1921. The poison was, however, inadvertently stated to be barium chloride instead of barium carbonate.

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The work once begun should be prosecuted vigorously and thoroughly, rat-proofing, elimination of all rat shelter, care of garbage, trapping, and poisoning operations being carried on simultaneously at as many points as possible, covering in a general way the entire area. There is a popular prejudice against the use of poisons, but where rats are present in large numbers recent experience has indicated the advisability of their employment under properly controlled conditions. The use of gases also may safely and advantageously be resorted to in places, the object being to neglect no destructive agent that will facilitate or hasten the extermination of the enemy. The bacteriology of plague and other rat-borne diseases should be thoroughly understood and a standardized technique covering the determination of these developed by a competent staff. Laboratory studies should be systematically carried on, especially in every large seaport in the country, in order to anticipate epidemics and furnish a record of progress in dealing with this phase of the work.

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In connection with the use of barium carbonate, the desirability of placing very wet baits is emphasized, as they seem to be more acceptable in this condition, and some of the poison adhering to the feet of rats is apt to be licked off and swallowed.

Phosphorus is another poison which has been employed successfully in the hands of health officers in rat-killing campaigns, but unless skillfully prepared it may be highly inflammable and therefore dangerous, especially to wooden construction.

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*A picture of this killing of rats has been presented in the *News Letter* for February, 1921. The poison was, however, inadvertently stated to be barium chloride instead of barium carbonate.

USES OF GASES

The importance of checking rat immigration at the ports is now generally recognized by health officers, and cannot be too strongly stressed. Stringent quarantine regulations rigidly enforced, and systematic and complete destruction of rats on board ships, are the best insurance against the entrance of plague. For this purpose hydrocyanic acid gas, also used extensively as a highly effective insecticide, is gradually replacing sulphur dioxide, over which it has so many advantages that the two should no longer require comparison. Exposure to this gas is, however, so quickly fatal to all animal life that competent direction of the work is essential as a safeguard against accidents.

Because of its volatility, hydrocyanic acid gas is adapted to use in places capable of being tightly closed, such as the hold or spaces between the bulkheads of a ship. In contrast, heavy gases, such as that generated by carbon bisulphid, may be employed to excellent advantage in treating burrows of brown rats. It is suggested that some of the heavy gases developed for war purposes might be utilized in the destruction of brown rats on a large scale in the sewers of certain cities where they are otherwise difficult to deal with.

SUMMARY

Owing to a strange human indifference to vital interests, which must be overcome through education, rats are still allowed to thrive and multiply exceedingly in many places. This is due chiefly to faulty construction of many kinds, to improper disposal of garbage, and to the prevalence of general insanitary conditions which afford an abundance of food and shelter to the enemy. In the correction of these conditions health officers, federal, state, and municipal, should take a prominent part, and, in coöperation with as many private agencies as possible, organize and carry on such systematic, far-reaching, and persistent rat warfare that these obnoxious rodents surely will be eliminated.

The control of rats, like that of other undesirable immigrants, should begin with the prevention of their landing at the ports; but this public duty falls to the health officer instead of the regular immigration official. Much may be accomplished by the thorough treatment, whenever practicable, of ship and cargo with hydrocyanic acid gas, or some other fumigant, and the isolation of the ship by means of metal discs on shore lines and by gangways raised at night. Efforts to exclude and to destroy rats should be centered in the seaports, as these are the rat strongholds, and the places where centers of plague infestation tend to develop. This can readily be done only by adopting standardized methods of proved efficiency, to be prescribed in accordance with varying local conditions.

Rats are cunning stowaways and the extension of rapid transit to include the most isolated places will make unremitting vigilance necessary everywhere in order to detect and destroy such introductions, and prevent the establishment of new colonies.

A simultaneous and widespread educational campaign should accompany all rat-proofing and rat-killing operations. Sporadic or incomplete attempts to control rats in particular districts, leaving neighboring areas infested, result in rapid reinfestation of cleared areas and accomplish little or nothing of permanent value. Success will depend upon coördination of efforts, including the enforcement of carefully considered ordinances requiring the rat-proofing of structures in general, until not only whole cities, counties, and states, but eventually the entire country is practically free of the pest.

An effective nation-wide rat warfare will require very large appropriations of public funds, the expenditure of which is justified by the facts that the value of food eaten or destroyed, together with other damage to property by these animals in the United States, is estimated to

be $200,000,000 per annum, and that the loss to the nation in lowered health and efficiency is incalculable.

With the advance of our knowledge of the life habits of animals, and the complex relationships existing in nature, the general field of parasitology is ever widening before us. The determination of the complete rôle of the rat, the great human parasite, in the transmission of disease is a very important field for further laboratory investigation by health officers, and this should promote the extermination of the animals by emphasizing the danger to which we are exposed.

Rats are no longer regarded chiefly as merely an unavoidable economic burden, in which health officers have little or no concern; instead, their presence is recognized as a civic reproach and a sanitary menace of the first magnitude, engaging the active interest of health officers everywhere. Civilization demands the consolidation of all available forces in the removal of the rat menace to the health and well-being of the human race.

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AN ACCURATE METHOD FOR DETERMINING THE ALKALINITY IN HYPOCHLORITE SOLUTIONS

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ANYONE who may have been called upon to make a determination of the alkalinity of a solution of sodium hypochlorite or chlorinated soda has been confronted with the practical difficulty of such a determination. All known indicators of acids and alkalies are almost immediately destroyed by the action of the chlorin upon them. The Columbus Laboratories were called upon a few years ago to make a series of determinations of this kind and the writers devised a method which was found to be rapid, convenient and accurate. This method consists of the removal of the active chlorine and the iodine which it releases by the use of dilute solution of sodium sulphite in the presence of a known quantity of a decinormal solution of hydrochloric acid and subsequent titrate of the excess of decinormal acid used by a volumetic solution of sodium hydroxide. The difference between the volumes of the hydrochloric acid used and the volume of alkali required to neutralize the excess of acid shows the volume of decinormal hydrochloric required to neutralize the alkalinity of the amount of the hypochlorite solution taken. From this the percent of alkalinity can be readily expressed. The active chlorine is removed by the sodium sulphite according to the following well known reactions:

Sodium Hypochlorite		Hydrochloric Acid		Potassium Iodide		Sodium Chloride		Water		Potassium Chloride		Iodine
$NaOCl$	+	$2HCl$	+	$2KI$	=	$NaCl$	+	H_2O	+	$2KCl$	+	I_2

and—

Iodine		Sodium Sulphite		Water		Sodium Sulphate		Hydroiodic Acid
I_2	+	Na_2SO_3	+	H_2O	=	Na_2SO_4	+	$2HI$

It will be seen in the above that for every molecule of hydrochloric acid consumed in this decomposition molecules of hydroiodic acid in equal number will be formed. This will react with the decinormal sodium hydroxide in the subsequent titration of excess acid without either gain or loss to the original decinormal acid solution used. The acid consumed by the hypochlorite solution is therefore due to its alkalinity.

Reagents.—

Sodium sulphite—approximately decinormal solution recently prepared from pure crystals.

Potassium iodide 10% solution.

Hydrochloric acid—a strictly decinormal solution.

Sodium hydroxide—a strictly decinormal solution.

Methyl orange 0.1 gram in 100 mils of water.

Method:

The following method of procedure has been found convenient. Add 7 mils of the hypochlorite solution to a tared 250 mils flask and weigh accurately. To this solution add from a pipette 10 mils of the potassium iodide solution and 25 mils of the decinormal hydrochloric acid. Now add the sodium sulphite solution from a burette carefully and lastly a drop at a time until the yellow color of the iodine just disappears from the solution. Then add to the flask 2 drops of the methyl orange and titrate from a burette with the decinormal sodium hydroxide until the acid in the flask is just neutralized.

Calculation.—Subtract the number of mils of sodium hydroxide used from the number of mils of hydrochloric acid taken and multiply the result by the decinormal monatomic equivalent of the kind of alkalinity supposed to be present. Divide the weight of this alkali, obtained by the weight of the hypochlorite solution taken and express the results in per cent of the original weight. For example: weight of the 7 mil hypochlorite solution, 7.3 grams, 20 mils of decinormal, sodium hydroxide required to neutralize the acid remaining in solution after removal of the iodine. Five mils of decinormal acid were consumed by the alkalinity in the hypochlorite. If calculated as sodium carbonate each mil of the acid consumed is equivalent to 0.0053 grams of that alkali. The total amount in the 7.3 grams of hypochlorite solution is therefore 0.0265 grams. This for 100 grams of hypochlorite solution is 0.0037 grams of sodium carbonate and the alkalinity of the hypochlorite solution expressed as sodium carbonate is 0.37 per cent.

Kind of Alkalinity. — The above process shows only the total alkalinity. If the kind of alkalinity is required this must be arrived at independently and by some other means. Thus if it is due to a bicarbonate it will be momentarily alkalin to methyl orange, but will not be alkalin to phenalphthalein. If alkalin to phenalphthalein it may be due to sodium carbonate or to caustic soda or caustic lime. There are means of distinguishng between these forms of alkalinity and when the condition has been determined they may be expressed in the same manner as above. The relations are as follows:

0.1% Sodium carbonate is chemically nearly equivalent to 0.16 — % sodium bicarbonate, or to 0.069% Calcium hydroxide.

Sodium thiosulphate decinormal solution may also be used to remove the active chlorine in the hypochlorite solution but the process is more complicated and not so satisfactory. When iodine acts upon sodium thiosulphate it forms sodium tetrathionate and sodium iodide so that we have no free hydroiodic acid formed as when the sodium sulphite is used. For this reason much more hydrochloric acid must be added in carrying out the process and the chances for error from inaccurate solutions are much greater. In trials on the same solution of hypochloric an equivalent of sodium

carbonate alkalinity, amounting to 0.40% was found by the use of the sodium thiosulphate solution as compared with 0.37% by the use of the sodium sulphite. In this process an equivalent of 79 mils of decinormal hydrochloric acid was required to replace the hydroiodic acid that would have been formed by the use of sodium sulphite and it was necessary to use a half normal hydrochloric acid to keep down the volume of liquid.

A neutral solution of chlorinated soda recently came into our hands which gave a chance of checking up the accuracy of the above described method of determining the alkalinity of this product. This solution of chlorinated soda contained .61% of available chlorine. 50 mils of this neutral chlorinated soda solution was diluted to 250 mils with pure water. 25 mils of this diluted solution was taken for each titration, and the following alkaline solutions were added in duplicate to flasks containing the 25 mils of this solution, the quantity used being given in the table below.

Sodium hydroxide (NaHO).

Calcium hydroxide ($Ca(OH)_2$).

For this purpose 5 cc. of saturated lime water were used the alkalinity of which was found to be equivalent to 1.8 mils of decinormal solution.

Sodium carbonate (Na_2CO_3).

Sodium bicarbonate ($NaHCO_3$).

To the solutions containing this added alkali was then added an excess of neutral potassium iodide in solution.

Then 10 mils of strictly decinormal hydrochloric acid were added and the liberated iodine was removed by careful treatment with decinormal sodium sulphite solution.

The acid remaining was then carefully titrated with decinormal sodium hydroxide, using methyl orange as indicated. The results were as tabulated below.

Kind of Alkali added	Quantity equivalent of decinormal solution	Decinormal alkali required to neutralize remaining acid	Total alkali required to neutralize the 10 mils. of decinormal acid
NaHO	2.0 mils.	8.0 mils.	10.0 mils.
$Ca(OH)_2$	1.8 mils.	8.2 mils.	10.0 mils.
Na_2CO_3	0.8 mils.	9.2 mils.	10.0 mils.
$NaHCaO_3$	1.0 mils.	8.9 + mils.	9.9 + mils.

It will be seen from these results that the total alkalinity supplied by the several reagents added, and by the additional decinormal sodium hydroxide required to neutralize the uncombined acid, gave results equivalent to the total amount of hydrochloric acid used, thus showing that the decomposition by the potassium iodide and sodium sulphite is wholly normal.

The significance of the above facts is emphasized by experiments comparing the reactions with those obtained by removing the active chlorine by hydrogen peroxide as has been suggested for this purpose. (Classen's Ausgewälte Methoden der Analytischen Chemie Zweiter Band P. 364.)

This method of removing the active chlorine depends upon the following reactions:

$$NaOCl + H_2O_2 = NaCl = O_2 + H_2O$$

The details of operation proposed for this method of removing active chlorine and subsequent determination of the alkalinity are as follows:

To a definite weight of hypochlorite, about 5 grams, is added 50 mils of distilled water. To the resulting solution, 6 mils of a 3% U. S. P. hydrogen peroxide solution is slowly added. After the reaction is completed, which is indicated by the ceasing of the evolution of oxygen, 4 drops of methyl orange solution and a measured excess of decinormal hydrochloric acid solution are added. The residual acidity is then determined by titration with decinormal sodium hydroxide solution. Each mil of decinormal hydrochloric acid solution consumed

by the alkali of the chlorinated soda solution corresponds to an equivalent of 0.0037 gms. $Ca(OH)_2$. It must be borne in mind here that hydrogen peroxide is not generally strictly neutral and corrections must be made for any acid present in the quantity taken for use.

When following out these details on solutions of chlorinated soda amounting to the 25 mils obtained as described above, and adding the same quantities of the several alkali solutions as shown in the table, the mixture with these several solutions required of total alkali to neutralize the 10 mils of added decinormal hydrochloric acid, quantities as follows:

With sodium hydroxide NaOH—10.5 mils.
With calcium hydroxide 10 mils.
With sodium carbonate, 10.3 mils.
With sodium bicarbonate 10.4.

This clearly shows an irregular decomposition in the chlorinated soda molecules whereby the apparent alkalinity is decreased in the case of the sodium hydroxide from 2 mils to 1.5 mils of sodium carbonate from .8 mils to 0.5 mils and of sodium bicarbonate from 1 mil to 0.6 mils which are relatively very large errors. It is only when the alkalinity is due to calcium hydroxide that the correct amount is shown.

So, too, the method of evaporating the chlorinated soda solution to dryness in presence of ammonia and titrating with decinormal acid and methyl orange, the residue dissolved in water, described by Classen under the same reference, has been found faulty and unreliable especially in the presence of unprecipitated lime.

It should be mentioned in this connection that the method of determining the alkalinity of Carrel-Dakin's solution, by sprinkling dry phenolphthalein on the solution and depending upon its quick action to determine the presence of alkali, is decidedly faulty for the reason that the alkalinity of this solution is clearly due to bicarbonate, and the alkalinity of bicarbonate is not indicated by phenolphthalein. A Carrel-Dakin solution of chlorinated soda, also known as "neutral solution of chlorinated soda," prepared as directed, by the use of sodium carbonate and bicarbonate (see New and Unofficial Remedies American Medical Association, 1918) and which showed 0.48% available chlorine and did not show alkalinity to phenolphthalein, did show an alkalinity equivalent to 0.40% of sodium bicarbonate when examined according to method outlined above, that is, by the removal of the active chlorin by sodium sulphite and subsequent titration by the use of methyl orange.

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Deterioration of Typhoid Vaccine.—Officials of the U. S. Hygienic Laboratory carried on experiments more than two and a half years to determine the effect of various storage temperatures on the agglutin producing properties of typhoid vaccine. Standard vaccine containing 1,000,000,000 organisms per cc. in 0.3 per cent trikresol was used and stored at four different temperatures, 5°C., 10-15°C., 20-30°C., and 37°C. The efficacy of the stored vaccine was tried out on rabbits. It was found that the highest temperatures are detrimental to the vaccine, so that the vaccine kept at 37°C. had practically no effect on rabbits after 18 months. The vaccine kept at room temperature had deteriorated more than that stored at the lower temperature in 6 months. The results obtained indicate that the rapidity of deterioration is in direct proportion to the temperature above 15°C. This is, therefore, the best temperature to maintain the vaccine at its maximum potency.—G. W. McCoy and Ida A. Bengtson, *Hygienic Laboratory Bulletin* 122 (July, 1920), U. S. P. H. S. *(J. A. T.)*

OBSERVATIONS ON DEFICIENCY DISEASES IN LABRADOR

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This observer had the rare opportunity of comparing communities of humans whose dietary could be absolutely determined. The Esquimos on the Labrador side of Belle Isle were able to get food with vitamins enough to protect them, but those on the Newfoundland side, even with milk from underfed cows, had much incidence of deficiency disease.

CHEMICAL analysis and animal experimentation have contributed greatly to our knowledge of the nutritive values of foods. The biological data have, however, for the most part been obtained from observations on small laboratory animals. Broad generalizations cannot be made until the problems of the essential factors in food have been studied also in human beings. Stefansson (Jour. A. M. A., 1918, 71, p. 1715), and other Arctic explorers have described the carnivorous diet of people in Polar regions. Hawkes (Canad. Dept. Mines, Geol. Survey Mem., 1916, 91, p. 29), has given an account of similar food habits of Eskimos in Northern Labrador. Very little study, however, has been made of the clinical evidence offered in the region in Labrador along the Straits of Belle Isle, where the diet is principally cereal and very low in vitamines and where deficiency diseases are known to occur not uncommonly. A study of the exact dietary and extent to which deficiency diseases occur in this region should throw a little light on some of the problems of nutrition.

The conditions fulfill the requirements of a true experiment because the dietary is known. Navigation is closed six months or more during the winter, so that food supplies must be procured in advance and the dietary cannot be changed. The observations to be recorded were made during the autumn, winter and early summer, 1919-1920, in Labrador along the Straits of Belle Isle, to determine the exact nature of the diet and the incidence of diseases supposed to be caused by a deficient dietary. For comparison a study was made in June of a group of communities on the Newfoundland side of the Straits where beriberi and xerophthalmia were prevalent. The two districts are entirely cut off from one another during closed navigation and could be studied separately and compared to find wherein lay the difference in diet and in frequency of disease.

DIETARY IN LABRADOR ALONG THE STRAITS OF BELLE ISLE

White Flour.—Bread made of bolted wheat flour is the chief article of diet. One and a quarter to one and a half barrels of flour are consumed per person per year.

Meat.—An average family of eight persons has one or two barrels of salt meat, pork or beef, two to four quintals of salt codfish, and one to three barrels of salt herring. Game is the only fresh meat eaten during the winter. Formerly it was plentiful but in recent years has been very scarce. A few partridges are shot in winter and various kinds of water fowls in the fall and spring. Trout are caught through ice holes in the brooks as early as May and cod and salmon fishing begin the end of June, lasting usually

through October. Seal meat is plentiful the first half of June.

Molasses. — Molasses is used for sweetening instead of sugar. Twenty gallons per person is a usual supply for a year.

Vegetables.—A barrel or two of potatoes and a like quantity of rutabagas are provided by the more prosperous families. Dried peas are eaten almost universally. Twenty to forty gallons is a family's supply for a year. Small quantities of rice, onions or dried beans were found to have been procured in a few instances but are not usual. The summer is short and uncertain for gardening, but in the more favorable years enough cabbage may be raised to last until November. Dock and alexander could be used as greens as early as June but are little eaten.

Fruit.—Nearly every family has ten to twenty pounds of raisins and a few pounds of dried apricots or dried apples. The only fresh fruit eaten are partridge berries and another little yellow berry called baked apple. The quantity of berries provided varies, usually only three or four gallons, but in some cases as much as 18 to 20 per family.

Butter.—A butter substitute is eaten almost universally instead of cow's butter. Twenty pounds per person is the usual supply. Poor families had only ten, or even less.

Milk. — Condensed or evaporated milk is used, the sweetened condensed being the most popular. Two cases of milk are considered an ample supply for a family. The poor have only a few cans.

Eggs are not imported and very few natives have hens. Egg powder is used in making cakes for fêtes.

Tea.—Tea is the universal beverage. Ten to 18 cups of tea a day are not an unusual quantity. Bread, tea sweetened with molasses and butter are the basis of every meal. Every family has from twenty to forty pounds of tea a year.

Meat, salt fish, potatoes and dried peas are eaten only once or twice a week and the supply may become exhausted in April.

EXTENT TO WHICH DISEASES CAUSED BY DEFICIENT DIETARY OCCUR IN LABRADOR

General.—Prolonged and stubborn constipation is almost universal in Labrador. Gastro-intestinal disorders are very common. The children are practically all undernourished and many are undersized. They have poor teeth. Amenorrhea is common, especially in young women, who are poorly nourished.

The first seasonal signs of the effect of restricted diet appeared the end of March and beginning of April, four or five months after fresh food was lacking in the diet. A sudden increase in nervous instability was evident at this season. Psychoses developed in persons with a predisposition or under special strain, such as the period of lactation or unusual mental worry. In most cases improvement or recovery followed the establishment of proper diet.

Night Blindness.—"Night blindness" became common during April and May. A person suffering from "night blindness" is able to see during the day, but becomes blind at twilight. If he is away from home he has difficulty in finding his way and even in the house stumbles over furniture. He can see a bright light but little else. It occurs chiefly in men; one of the patients seen was a woman and the history of the disease in women could only be obtained in two instances. Children seem to be immune to night blindness as to snow blindness. The youngest patient seen was a boy of 15. It is most common in early adult life but was seen even in a man 70 years of age. Although "night blindness" occurs at the same season as snow blindness, in no case could any direct relation between the two be traced. It was not common exclusively among the very poor. It appeared in groups of people rather than in families. The degree of blindness varies in intensity and may be intermittent. It does not occur after dull days.

If night blindness is the result of dietary deficiency, the deficiency is very slight as the cure was effected within a few hours after the diet was corrected by giving vegetables, butter or eggs. It was interesting to find that the traditional lay method of treatment, which could not be traced to the advice of any physician or nurse, was eating raw bird livers. Potatoes roasted in ashes and eaten, skins and all, cod liver oil, and seal livers were said to have been used in a few cases with good results.

Xerophthalmia.—Only one case of xerophthalmia was seen. The patient was an old man whose food supplies had been very scant. He was seen in May, but the eye trouble had existed for some time and was too advanced for recovery to be expected.

Scurvy.—Three persons having scurvy came under observation, all early in May. One man had intromuscular hemorrhages in the arm. Two brothers 16 and 19 years of age had spongy bleeding gums. About the same time several patients came with ordinary ulcerative *stomatitis,* calling it scurvy. They recovered rapidly with the administration of potassium chlorate. This suggested giving potassium chlorate to the two brothers with spongy bleeding gums in the absence of better means. Both improved and the mouth of one healed completely with this treatment. A month later it was possible to give orange juice and the recovery of the other was complete.

Pellagra.—Only one case of pellagra was seen. The patient was a woman 28 years of age, who had not been well during the winter. Typical skin lesions appeared the first of May. Hygienic conditions were bad. The family was very poor and had had little food but bread and tea since February. A family of five had for the winter's supplies five barrels of flour, 18 gallons of molasses, seven or eight gallons of dried peas, 22 pounds of butter substitute, two quintals of salt fish, and a certain amount of rolled oats left over from war food requirements. An epidemic of *erythema nodosum* occurred in the same village at the time pellagra developed and similar lesions were present on the skins of the pelagrin.

Beri-Beri.—Two patients with beriberi came under observation. One, a young married woman, who had suffered from a severe form for nearly a month, was seen in May only three days before her death. The patient lived in such an isolated spot that it was impossible to get proper food to her in so short a time. The second was a middle-aged man who became ill early in June. Both belonged to very poor families where supplies were scant and in the case of the young woman the hygienic conditions were exceptionally bad.

Edema.—During May and June four patients had edema without polyneuritis or sensory disturbances. One man had had similiar trouble several years before. His son also had edema of the legs. Both recovered promptly.

Edema complicating pregnancy either with or without albumiuria has not been included in this group. A slight amount of edema of the legs without albuminuria or eye symptoms was common in pregnant women, but they came to term without incident and bore healthy children. One woman had albuminuria and considerable general edema several weeks before and after delivery.

Rickets.—Even with the extent of malnutrition present in children there is very little rickets. Only two cases with marked signs were seen, both of tuberculous parents. Three other children had slight beading of the ribs, but there were no enlargements of the epiphyses, bow legs, changes in the skull or other bony deformities.

EVIDENCE OF INCREASED SUSCEPTIBILITY TO INFECTION

The importance of the protective rôle of certain substances in the diet against infection was shown by the great prevalence of tuberculosis among men not-

withstanding that they live chiefly in the open air. The women go out very little, but the men lead an active out of doors life. During May and June they work either out of doors or in open store houses, preparing their boats and fish nets. During the summer and autumn they fish, and in the winter every fine day they are in the open chopping wood. Wood and water must be hauled, so they spend considerable time driving their dog teams. Although they live in small quarters during the winter and the windows are rarely opened, considerable air must seep through the thin walls of the frame houses and the air is not foul as one enters the houses.

EPIDEMIC OF BERI-BERI AND XEROPHTHALMIA OF THE NEWFOUNDLAND SIDE OF THE STRAITS OF BELLE ISLE

In contrast with the conditions described on the Labrador side of the Straits of Belle Isele, where deficiency diseases occurred only as isolated cases, over a hundred cases of beri-beri developed in a group of communities on the Newfoundland shore across the Straits. Xerophthalmia was equally common. Frequently, when one member of the family had beri-beri, another had xerophthalmia. In one instance the patient was taken sick in December; the majority of cases, however, did not occur until March. In the region where beri-beri and xerophthalmia were prevalent the infant mortality was very high in contrast with a low infant mortality on the Labrador side of the Straits.

In the beri-beri patients edema and sensory disturbances were the chief symptoms. Swelling of the legs and ankles, coming on gradually, was the onset described in almost every instance. Pain, numbness burning or tingling was complained of by practically all. Sometimes the pain did not begin until the swelling began to disappear. Shortness of breath occurred in about one-fourth of the cases. Abdominal pain or numbness was present in about one-third of the patients. Eye trouble rarely occurred with beri-beri. One patient said he had been blind all spring. Motor symptoms were described as "weakness" rather than paralysis. One patient reported that he had had beri-beri in the fall and had taken fresh whole milk and had been cured. Another had tried the same treatment from April to June and was no better.

DIETARY OF THE NEWFOUNDLAND COMMUNITIES

The difference in diet in the two regions was slight but distinctive. On the Newfoundland side of the Straits the people had no canned milk and no vegetables, i. e., neither potatoes nor rutabagas, as in the other district. There had been very little fishing after August, in contrast with the Labrador side where fishing continued through October, i. e., the supply of fresh fish was cut off nearly two months earlier. In the Newfoundland region people are considered much more prosperous. They have many cows, while in Labrador there are very few. A great part of the people eat butter rather than the butter substitute. All milk is scalded immediately, often for an hour or an hour and a half, to facilitate the separation of cream for butter-making. All cream is made into butter. The cows were not milked later than December and in some cases October. The hay had been cut late after the grass was dry, and the cows either perished before summer or were in such poor condition in the spring that even with green pasturage they did not recover until the middle of the summer. Cattle are fed hay only and are never given salt.

DISCUSSION

It is evident that from a nutritional point of view the people in both regions are in a "twilight zone" where very slight changes in the diet may cause deficiency diseases. Cereal grain is the chief source of protein. The usual sources of vitamines are lacking or inadequate. It is probable that a certain amount may be present in molasses. Tea may be an important source of vitamines.

Except in isolated cases, where the diet fell well below the average, the inhabitants on the Labrador side of the Straits were protected from deficiency diseases by the vitamines furnished by small quantities of canned milk and vegetables and the additional protein supplied by a longer season of fresh fish. Condensed and evaporated milk was a more satisfactory source of vitamines than butter made from the milk of cows fed on poor hay deficient in vitamines. Cow's milk cured beri-beri in the fall soon after green pasturage, but had lost its antineuritis substance in the spring after the cattle had had only dry grass.

Mothers on a diet sufficient to protect against deficiency diseases were able to nourish their sucklings, but wherever the diet dropped below the requirements for protecting against beri-beri the quality of mother's milk was such as to be insufficient to support life although the quantity was little reduced.

The coincidence of the occurrence of beri-beri and xerophthalmia indicates a modifying interrelationship of dietary elements. A deficiency in one type of vitamine probably increases the amount required of another. A poorer source of protein may also increase the amount required.

The growth of children is retarded very generally on a diet which produces deficiency diseases in adults only in isolated cases.

Night blindness is probably not a true deficiency disease. It did not occur in the region where other deficiency diseases, beri-beri and xerophthalmia, were common, but in places where these diseases were absent. The poor were not the only ones to suffer. The frequency of night blindness increased during April and early May and then decreased, although the dietary deficiencies continued to become more and more acute. Night blindness came at the season when nervous instability increased. Its occurrence in groups of persons rather than families also suggested a neurotic element, but its exclusive presence in men and its ready response to treatment spoke against this etiological possibility. Night blindness is most likely a prolonged negative after-image resulting from long continued exposure to the glare of snow. Similar blindness can be produced experimentally by looking at a white sheet in a bright light. Night blindness does not occur during the short, dark winter days nor in summer when the ground is free from snow, but in spring, when the increasing intensity of sunlight makes a dazzling glare upon the unbroken whiteness of the snow. Snow blindness results in many cases. Night blindness comes at the same season but lacks the intense photophobia of snow blindness. Women go out little and so escape. It is the young men engaged in out-of-door pursuits who suffer most. The blindness varies in intensity and may skip days. No doubt it is dependent on the brightness of the day and length of exposure out of doors. It does not occur after dull days. Patients respond readily to treatment, no doubt because they stay indoors when they are troubled sufficiently to submit to treatment. Suggestion may play a role in causing night blindness by attracting the attention to the after-image. This is equally true of any normal person. Restricted diet may also increase the probability of seeing after-images just as fatigue does. It is a temporary fatigue of the retina and not an inflammatory process as in the case of snow blindness.

The absence of rickets in a region where children are almost universally undernourished is interesting, especially where syphilis has not existed until very recently and is still rare. This suggests the importance of chronic infection, especially syphilis, as a predisposing prenatal factor in the etiology of rickets.

The increased susceptibility to tuberculosis in the absence of protective substances in the food is very striking, and appears to be one of the most important etiological factors in that disease.

FINDING TUBERCULOSIS THROUGH SURVEY AND CLINICS

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Read before the N. J. Tuberculosis League at Lakewood, N. J., October 20, 1920.

FIRST of all let me say that we are proud of the fact that the city of Newark last year ranked first in the number of reported tuberculosis cases in proportion to the population. This was not due to the fact that the death rate was higher or that there were a greater number of cases in our city, but simply due to the hearty coöoperation of physicians and other agencies with the Department of Health. The response to publicity and propaganda carried on by the health department in which repeated chest examinations were advocated, gave our clinics unusual opportunity to discover cases that would not have otherwise come under the supervision of the physician.

However, I still believe that there are a large number of cases that can be found in congested localities of our city by means of health surveys by visiting nurses and physicians, as well as through clinics.

For example:—Two years ago we conducted a survey on a small scale in a thickly populated section of the city and as a result it was found that in 42 tenement houses in one block there existed 23 active tuberculosis cases that were not known to the health authorities. If not for this survey, these cases would not have come under medical supervision. Of these, the majority were sent to various sanatoria and the families of the patients have from time to time been examined as routine follow-up work.

Last year a more elaborate ward survey was made; the nurses of the Department of Health having definite streets assigned to them in the district; a thorough house to house canvass was conducted; every person found to have a cough of any description whether bronchial, asthmatic or otherwise was noted and questioned. Nurses subsequently followed up these suspicious cases by frequent visits. Those whose coughs soon disappeared were dropped from the list; but coughs that persisted and appeared chronic were advised to visit our clinics or requested to produce a certificate from a physician stating that they were free from tuberculosis. As a result of this procedure many new cases were discovered. The result as follows:

FOURTEENTH WARD

Population 40,000

Colds and Coughs	108
Bronchitis	26
Asthma	8
Suspected T. B.	22

There is no question in our minds that if all cases of tuberculosis were recognized early and were brought under proper medical care, tuberculosis could be prevented and in the near future be eliminated entirely from the community. The only way that this can be accomplished is by repeated examination of the entire population by physicians well trained in the diagnosis of this disease.

We must train the people so that they will willingly present themselves for examination to physicians or clinics. This can be done by means of educational publicity and proper legislation. In the meantime we must seize every opportunity that is given us to examine portions of the population.

Our city has a recreation camp for

children at Avon-by-the-Sea, where the little ones of the city are sent for two weeks' vacation each summer. Formerly the children before leaving for camp were examined for acute diseases, scarlet fever, measles, whooping cough and diphtheria. This year I requested the city authorities to send all of the 1,400 who applied for admission to the camp to our clinics for examination of the chest. As a result many active and suspicious cases were discovered. None of the children, however, except those needing immediate sanatorium treatment were prevented from going to camp. Upon their return to the city, the suspicious and incipient cases were brought to the clinics for re-examination. Some suspicious cases were found to have cleared up from all symptoms, while in those cases where improvement had not taken place, steps were taken to put them under the supervision of the tuberculosis division and proper disposition made as to their treatment, care and future welfare.

It is curious that many of these cases had been attending school without their physical condition being known to their parents or the school authorities. In many instances parents were shocked and surprised when told of the condition of their child, telling the physician that the child had never coughed, disregarding and not noticing that the child was at that very moment coughing in the clinic room.

Total examined	1,650
Total suspected tuberculosis cases	132
Negative	67
Positive	12
Remain to be re-examined	55

About 60 children have failed to return to re-examination.

As physician of the Juvenile Court of Essex County, I have had the unusual opportunity during the past two years of examining more than 2,000 children ranging in age from 6 to 16 years. My findings were as follows:

Referred to Glen Gardner Clinic	109
Examined	43
Accepted	22
Rejected	11
Waiting Admission	3
Taken care of by other institutions:	
City Home	4
State Home	2
Referred to Orange Board of Health	1
West home and reported and are under observation	56
Left the state	10

Recently, by the direction of the Health Officer, a physical examination of all the food handlers in our city was inaugurated and examination of their chests was carried out through our Division. To date approximately 1,400 employees of food handling establishments have been examined and 20 active cases of tuberculosis discovered. It is perhaps, needless to state that these persons are no longer permitted to handle food. The majority have been sent to sanatoria and other employment found for the remainder.

In conclusion I would say that 112 cases have been discovered that were it not for our system of surveys and clinics, these unfortunates would be going about in the city freely, spreading and communicating the disease to others; endangering themselves and the rest of the community. If we utilize every effort to discover all existing cases and help to educate the community to a higher standard of living, we shall at least be getting somewhere in this true National problem of eradicating disease that takes so great a toll of many young and useful citizens.

Are you thinking about the Fiftieth Annual Meeting of the A. P. H. A. in New York City, November 14-18, 1921?

REPORTING COMMUNICABLE DISEASES—A PHYSICIAN'S POINT OF VIEW

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Prevention of communicable disease is the fundamental reason for public health service. If administration fails here it can not be successful elsewhere. Efficiency of administration depends upon prompt knowledge of presence of disease. Since reporting must be done by physicians they are often blamed, but existing systems are at times inconvenient for them. The author suggests new procedures more convenient for physicians.

NO ARGUMENT is needed to convince the health officer or health worker that the report of communicable disease is the weakest link in the chain of communicable disease control, but the following quotation from the New York State Health Department's "Health News" (September, 1920) suggests the need for a continued, constructive program on the part of health authorities to make reporting more complete:

"A recent comparison of deaths from communicable diseases outside of New York City shows an average of 52% unreported to health authorities, the figures varying from 20% for diphtheria to as high as 84% for puerperal septicæmia. If these be the facts for fatal cases, what then must be the state of affairs in regard to the less serious ones which are much more likely to spread infection."

If this situation is admitted by the health authorities of New York State where health service is so well organized and will directed, where facilities for accurate diagnosis are readily available to physicians and where education regarding communicable diseases has been carried into the most remote communities of the state, what must it be in other states less fortunate than New York?

Although there is nothing really new in the suggestions which follow, it is perhaps worth while to give greater emphasis to certain phases of this problem, which in the development of local health service to meet new demands have been somewhat neglected. Briefly stated, the success of a campaign to improve the reporting of disease seems to depend on the following measures:

1. Making reporting easy for physicians and others.
2. Furnishing physicians with prompt and efficient laboratory service.
3. Making prompt investigation and taking intelligent action on reports when made.
4. Conducting continuously a thoroughgoing campaign for the education of those responsible for reporting.
5. Enforcing the law when practicable.
6. Checking all reports of death from communicable diseases against the register of reported cases.
7. Eliminating from the list of reportable diseases those over which the health authorities do not actually exercise supervision.

The first consideration, and perhaps the most important, is making reporting easy. As one studies reporting methods, he finds more often than not that, instead of trying to make reporting easy for physicians and others, health authorities have apparently tried to make it hard by requiring information from them which the health authorities ought to obtain for themselves, and by requiring a great deal of information which is not used at all, or if used, not properly used.

I can do no better than to quote on this point Dr. Hibbert W. Hill, whose name is familiar to all readers of the JOURNAL:

"A health department should look upon the report of the physician as merely a starting point. The health department should get reports of disease from physicians as promptly as possible, and should accept a phone message in preference to a written report, because the phone message is more prompt. The health department should not ask a physician to answer a thousand fool questions on the report about the epidemiology of the case. The physician can't and won't answer such questions; or if he does, he will answer them wrong. All you want from the physician is the patient's name and address so that you can go to the house. I believe that health departments should not insist on a diagnosis, but simply have the physician report that there is a case of infection at such or such address; that is quite sufficient, or ought to be for any well-equipped health department. It ought then to have its machinery so developed that almost instantly an inspector is on the spot. The inspector should find out for himself what really is the matter and take proper steps."*

As Dr. Hill points out thus tersely, one way to improve reporting is to organize the health department in such a way that the investigation shall be made by the health department and not by the physician.

This is really a vital issue. Physicians are mighty busy people as a rule and the demands upon their time in the care of their private patients must be met first. The average physician is called upon daily to give his time and energy to a hundred and one things which add little to the development of his private practice but much to his work. Among the most irritating of his duties is that of making out records and reports of one kind and another, not only those which the law requires of him but also those which health authorities and private health and welfare agencies request. If something can be done to reduce the amount of unnecessary record keeping and reporting that physicians have to do, it is certain that they will respond with greater enthusiasm in doing those things which are really essential. If physicians are called upon to report only the name and address of a suspected case of communicable disease and are encouraged to use the telephone for this purpose, there will be an improvment in reporting—depend on it.

But the physician is not the only one responsible for the incompleteness of reporting. Commonly under the law, householders, institutional heads, teachers and others are required to report disease. They don't do it because they have not been taught to do so and because reporting has not been made easy for them. If reporting could be made easy as has been suggested, and a thorough campaign of education conducted among citizens generally, it is probable that the percentage of "missed" cases could be very considerably reduced. The majority of these cases are not seen by a physician, but some responsible persons see some that physicians do not see and someone's responsibility for reporting is ordinarily under the law as great as the physician's. It is possible that if citizens were informed of this fact and of the fact that health authorities welcome reports from them by telephone, anonymously or otherwise, health authorities might be put to the trouble of making some unnecessary investigations, but the gain in finding otherwise unreported cases would more than offset the loss of making a few unnecessary investigations.

The diagnostic laboratory is, of course, indispensable. It should be provided wherever possible and its use encouraged. To promote reporting, the laboratory report of a specimen sent in by a physician should be accepted as his report and no other report should be required of him. But the laboratory must be prepared to render service to the physician in return. The physician who sends in a diphtheria culture and then has to wait two or three

*From an address given by Dr. Hill before the students of a course in public health administration conducted jointly by the Bureau of Municipal Research, New York, and the Public Health Committee of the New York Academy of Medicine, May, 1919.

days for a report on it, in the meantime keeping himself, the patient and the family on the anxious seat, will often find it more convenient to send his specimens to a private laboratory which will serve him better. This is not at all uncommon practice among physicians in large cities —and there is a reason. Of course, the net result of this is that the health department loses, because in such cases it does not get the report of the disease or suspected disease until the private laboratory has made its report to the physician.

The handling in the health department of the abbreviated report of disease suggested is most important, since under this plan, the report would in most cases come over the telephone. This means that there should be an intelligent, competent clerk to receive and register reports by telephone or otherwise. One objection raised by health officers to telephone reporting is that it is often difficult to fix the responsibility of a physician for failure to report when there is no written record made and certified to by him. This is true, but the fault is perhaps more often that of the clerk receiving the telephone communication than that of the physician. The correction of this defect is, however, an administrative detail.

The next important procedure for improving reporting should be the responsibility of the health department alone—namely, the prompt investigation of the case by an intelligent, tactful investigator and prompt and efficient action by the health officer and his assistants. If an investigation is to be effective in determining control of the disease, it must be immediate, and if it is immediate, it will please the one who reported the case. Every physician has experienced the annoyance of reporting a case of communicable disease and then waiting for twenty-four hours or more for action by the health department. Prompt action will please physicians because it will relieve them of unpleasant duties and sometimes unpleasant arguments with the patient and family. To get prompt action requires that as soon as a report is received, a competent inspector shall be available to whom the report may be referred for or immediate investigation. The inspector's office should be in the saddle or better still, in an automobile. When his investigation is made, such action as may be necessary can be taken on the spot and a complete report made to his superior.

We have already said something about the educational campaign, but it may be well to be more specific about this. The educational effort should, it is believed, be directed primarily at the householder and not at the physician. Perhaps the physician needs education too, but certainly he ought to know what his duty is by this time. Keep him informed, of course, but without too much preaching. If there is anything that makes the average physician tired it is the effort of non-physicians to teach him his business. So if any education of physicians is attempted, it should be in the form of direct communcation from the health officer who, if he is a physician himself, will appreciate the physician's point of view. For the education of the public, and physicians too, the printed word is good, but the personal interview is better. One of the best mediums for the use of the printed word is the daily press, and the press can be used if the subject is one having news value. There is news value in a story that the local health department is about to start a drive against communicable disease; that a new system of reporting and investigation is going to be adopted which will cause as little inconvenience to citizens as possible, etc. The same ideas can be expressed in printed circulars and distributed to homes by school children or inspectors, nurses and others on their daily rounds. But the mere leaving of a circular in the home is not enough—and every home visit by the inspector or nurse should be

regarded and used as an educational opportunity. This kind of education is after all the most valuable.

Law enforcement to improve reporting is a neglected weapon. Most health officers have adopted the view that "more flies can be caught with molasses than with vinegar." We do not quarrel with this point of view, but there is something to be said in favor of taking advantage of the law in cases of deliberate and willful failure to report. The physician who neglects to report occasionally may, perhaps, be excused, but the one who reports only by a death certificate ought not to be always excused. The health officer should select his victim with care when he resorts to the law, and the case must be so worked up that there will be at least an even chance of getting a verdict for the health department. Threatening physicians does little except to make them wrathy, but no good physician will quarrel with a health officer, surely, for trying to enforce reasonably a law which he has sworn to enforce, especially if that law had been persistently violated. As regards law enforcement, it might be well for the health officer to secure the backing of his local medical association and fortify himself with a statement of its position with regard to law enforcement, to what extent and when the law should be invoked and how far the medical society is willing to go with him along the legal route.

The checking of all deaths for communicable diseases against the register of reported cases is a matter of administrative routine, and ought not to require emphasis. But there are scores of health departments in which this is never attempted. Action after a death report is too late in the day, of course, to help the particular case, but it may not be too late to prevent disease of others. Certainly it isn't too late to check up the physician or other person who neglected to report at the proper time. For statistical purposes, too, full information is valuable and should be obtained in every case.

Finally, to improve reporting health authorities ought not to require reports of diseases about which they intend to do nothing. If the health department doesn't intend to investigate a case of lobar pneumonia or puerperal septicæmia for example, and doesn't intend to use its information about these diseases to establish control of them, why ask physicians to waste time in reporting them? The health laws of many states and cities include in their lists of reportable disease many which are only occasionally reported and to which the health authorities pay no attention even when reported. The physician or other person who learns that no use is made of his report of one disease is less likely to report others, and the statistics of diseases for which reporting is required by law but not required in fact are worthless because such reports as are received represent only a very small percentage of existing cases.

A public health service built on an inefficient system of communicable disease control will be inefficient in every department of its service. It seems to the writer that it is time to get down to brass tacks in the development of public health administration and put more emphasis and more effort on the attack against communicable disease. As in football, quoting a famous and successful football coach, "The best defense is a strong offense." The offensive must start with improved r e p o r t i n g of disease—and though 100% reporting may be is too much to expect, certainly 50% reporting is little to be proud of.

Are you planning to take a friend when you go to the Fiftieth Annual Meeting of the A. P. H. A. in New York City, November 14-18, 1921, and nominate him for membership?

EPIDEMIOLOGICAL STUDY OF AN ENDEMIC FOCUS OF LEPROSY

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and
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Read before Laboratory Section, American Public Health Association, at San Francisco, Cal., Sept. 16, 1920.

In this focus the authors found the majority of cases to be among native-born children of German-born parents, males preponderating, and largely infected in the locality. It is uncertain whether the infected area is increasing. Cases are grouped in distinct foci and insect transmission is inadequate to explain the grouping while contact transfer is not wholly satisfactory.

HAVING learned of the prevalence of leprosy in the area under consideration to a degree unusual in the United States, it appeared that all available data pertaining thereto should be secured and made a matter of record. This study was therefore undertaken in an unofficial capacity, a circumstance which possibly has not aided in the collection of information. An epidemiological investigation of a chronic disease of long duration such as leprosy is a much more difficult matter than the collection of similar data for an acute infection for reasons that are obvious. The records of the health department are very meagre, and only relate to the reports of cases within recent years. So far as possible our information was secured from the patient himself, and where the patient himself was not available, for one reason or another, we are largely indebted to the practicing physicians of the city for our information. To them are due our hearty thanks.

Endemic Area.—The endemic area is a moderate sized, subtropical city located at the eastern end of a long, narrow island in the Gulf of Mexico, two or more miles distant from the mainland. Industrially the city is a seaport of considerable importance, while manufacturing is of relatively minor importance. Demographically the city differs from most southern cities in the rather small proportion of negroes and for the large proportion of foreign born whites, or native whites of foreign born parentage composing the population.

Known Incidence of Leprosy.—The site of the city has been settled about one hundred years, but the information we have been able to collect regarding the incidence of leprosy does not cover a period of over thirty years. This not to be taken as a suggestion that leprosy was unknown prior to that time, but is due to the absence of any official data regarding its early occurrence.

The earliest case of leprosy of which

we have been able to learn was recognized in 1886, and shortly thereafter permanently left the area. It was apparently of local origin and is not included in our series. In 1889 Dock[1] reported two cases of local origin, which are included in our series. In a personal communication Dock states that he made at the time a "pretty thorough survey of the Mexican and Chinese quarters, but did not find any other cases." Only one Chinese case of leprosy has ever been known here, and of our series only two are Mexican. In addition to the 45 cases of our series, we have learned of 25 additional cases of leprosy that have existed in this focus, but owing to the lapse of years and the absence of recorded data, have been unable to secure many particulars and have accordingly omitted these cases.

Our series of 45 cases has occurred during the past thirty years. We have divided these cases into three groups as follows:

Class A: Living cases at present residing in the area..... 26
Class B: Cases presumably alive, but who have removed from the area. 6
Class C: Cases known to be dead.. 13

We were able to secure the most detailed and complete information concerning the cases of Class A. From an analysis of the data we have collected we present the following tables of summarization:

TABLE I

Local or Imported Origin of the Cases

	Class A	Class B	Class C	Total
Imported	3	2	0	5
Local cases	23	1	12	36
Unknown origin	0	3	1	4

The imported cases will be omitted from many of the subsequent tables. Where such is the case, the table heading will indicate this by (40).

The cases have the following incidence:

TABLE II.

Racial incidence of leprosy cases (40)

	Class A	Class B	Class C	Total
Whites of:				
a. Native born parentage	6 (26%)	1	2	9
b. Foreign born or mixed parentage	11 (48%)	0	5	16
c. Foreign born	1 (4%)	0	3	4
Negro	5 (22%)	0	2	7
Other races	0	0	0	0
Unknown	0	3	1	4

TABLE III.

Sex incidence of leprosy cases (40)

	Class A	Class B	Class C	Total
Male	13	2	10	25
Female	10	2	3	15

Their age at the onset of the disease was as follows:

TABLE IV.

Age at onset of leprosy (40)

	Class A	Class B	Class C	Total
From 1 to 10 years	1	1	0	2
" 11 " 20 "	8	0	2	10
" 21 " 30 "	2	0	0	2
" 31 " 40 "	5	0	3	8
" 41 " 50 "	2	1	0	3
" 51 " 60 "	3	0	2	5
Over 61 years	0	0	2	2
Age unknown	2	2	4	8

These cases had resided within this area for the following named periods before the onsets of their illnesses:

TABLE V.

Length of residence in focus before onset (40)

	Class A	Class B	Class C	Total
From 1 to 5 years	2	0	1	3
" 6 " 10 "	1	0	0	1
" 11 " 15 "	8	0	2	10
" 16 " 20 "	5	1	4	10
" 21 " 30 "	2	0	0	2
" 31 " 40 "	2	0	0	2
" 41 " 50 "	0	0	1	1
" 51 and more	1	0	1	2
Length of residence not known	2	3	4	9

From Table IV it would appear that especial susceptibility is not observed at any particular age period. In order to ascertain if length of residence within this area was an influencing factor, rather than age in determining the onset, we divided our cases into two groups, according to their birth place. The first group comprises those born within this area and the second group those born elsewhere. The individuals comprised within each of these groups were then separately classified according to length of residence and age at onset. This data is presented in Table VI. As would be expected, there is, among those born locally, a close correlation between the length of residence and the date of onset, the maximum occurring during the second decade of life and residence. On the other hand, among those born elsewhere this correlation is not found. It is to be noted, however, that the maximum number of onsets in this group have occured during the second decade of residence, as among those locally born, while the ages of onset are among the later periods of life. It therefore appears proper to conclude that length of residence within this area, rather than age, is a determining factor in influencing the onset.

TABLE VI.

Relation of age and residence to onset (40)

	Cases born in area		Cases born elsewhere	
	Length of residence	Age at onset	Length of residence	Age at onset
From 1 to 10 years	2	1	2	1
" 11 " 20 "	9	9	11	1
" 21 " 30 "	1	2	1	0
" 31 " 40 "	2	2	0	6
" 51 " 50 "	0	0	1	3
" 51 and over	1	1	1	6
Unknown	3	3	6	5

Note—Apparent discrepancies in first and second columns are due to patients who temporarily moved away.

These patients were, or are engaged at the present, in the following occupations:

TABLE VII.

Occupations of leprous patients (45)

	Class A	Class B	Class C	Total
Real estate agent	0	0	1	1
School child	2	0	0	2
Locomotive engineer	1	0	0	1
Laborer	10	0	4	14
Retired tailor	1	0	0	1
Delivery boy	1	0	0	1
Laundry worker	0	0	1	1
House worker	7	1	1	9
Seamstress	1	0	0	1
Sailor	0	1	0	1
Cashier	1	0	0	1
At home	1	0	0	1
Fireman	1	0	0	1
Stenographer	0	1	0	1
Harness maker	0	0	1	1
Hospital orderly	0	1	0	1
Not known	0	2	5	7

Multiple or single cases have occurred as follows:

TABLE VIII.

Number of cases in invaded households (45)

	Class A	Class B	Class C	Total
Households with 1 case	19	6	7	32
Households with 2 cases	2	0	3	5
Households with 3 cases	1	0	0	1
Family with 4 cases (incl. above)	1	0	0	1

Clinically these cases may be grouped as follows:

TABLE IX.

Frequency of different clinical types (45)

	Class A	Class B	Class C	Total
Tuberculous	11	2	4	17
Anesthetic	5	1	0	6
Mixed	10	2	9	21
Not known	0	1	0	1
Ulcerative (incl. in mixed)	1	0	0	1

These cases have been of the following duration:

TABLE X.

Duration of illness in leprosy (45).

	Class A	Class B	Class C	Total
Less than 1 year	2	0	0	2
From 1 to 2 years	2	0	1	3
3 "	5	0	0	5
4 "	3	0	2	5
5 "	3	0	1	4
6 "	1	0	0	1
7 "	3	0	1	4
8 "	2	0	1	3
9 "	0	2	0	2
10 "	2	0	0	2
15 "	2	0	0	2
17 "	0	0	1	1
24 "	0	0	1	1
Not known	1	4	5	10

In considering the facts presented by this series of tables, the following stand out:

(1) The majority of known lepers within this city have acquired infection locally.

(2) A comparison of the racial incidence of cases with the current distribution of the population is at the time of this writing impossible, since the results of the 1920 census are not yet available. An accurate estimate for 1920 furthermore cannot be made. Accordingly we shall have to employ the 1910 population composition.

TABLE XI.

Racial incidence of leprosy compared with racial composition of the population.

	Living lepers, 1920	Proportion in population, 1910, by percentage
White		
Native born parentage	26%	34.2%
Native born of foreign or mixed parentage	48%	27.3%
Foreign born	4%	16.7%
Negro	22%	21.7%

Thus it is apparent that cases have occurred among whites and negroes only in proportion to their distribution in the population of this area. On the other hand, it is to be noted that the cases are more numerous among those whites of foreign-born parentage, than among native-born whites. This incidence among those of German parentage seems to be proportionately higher than among those of other descent. Thus in 1910 the native-born whites of foreign-born German parents were 2,365 of 6% of the total population, while 35% of the present cases are among their number. The significance of this not clear. It may indicate greater susceptibility among those of German ancestry, or the strain of leprosy prevalent here may be of Teutonic origin.

(3) We have 25 male and 15 female lepers.

(4) Only one of our cases developed the disease before the age of ten, yet the second decade of life contains the onsets of a larger number of cases than any subsequent age period, none of which is exempt.

(5) For the most part, infection only appears to develop after a protracted residence in this area. Only two cases are known to have developed the disease under five years' residence. The most of the cases have appeared following a period of residence of from eleven to twenty years. It appears that the length of residence is a more important factor in determining the age of onset than the age itself.

(6) Among males the greatest incidence is among laborers. The occupational incidence among females is not suggestive. In general the occupational incidence coincides with the social status of the cases, that is, they are most prevalent among those in the humbler walks of life.

(7) The disease in this focus tends to run a chronic course, characteristic of its occurrence elsewhere. The tuberculous type is more common than the anesthetic, while the mixed is more frequent than either of the others. Only one of the present cases has any ulcerations.

Annual Incidence of Leprosy.—The annual incidence of leprosy within re-

cent years is shown in the following table:

TABLE XII.

Year	Population, mid-year est.	Onset	Rate per 100,000	Cases reported	Death rate per 100,000
1911	37,851	0	0	1	0
1912	38,597	2	5.2	2	2.6
1913	39,343	2	5.1	2	2.5
1914	40,089	1	2.5	0	2.5
1915	40,835	1	2.4	0	0
1916	41,581	4	9.6	0	4.8
1917	42,327	4	9.4	0	0
1918	43,073	2	4.7	8	0
1919	43,819	1	2.3	3	4.5
1920 (5/1)	44,565	1	2.2	1	2.2

While our information concerning the incidence of leprosy prior to 1910 is meagre, so that in all probability the majority of cases are unrecorded, yet it is uncertain that the incidence of the disease has increased materially during the last decade. To give an idea of the recent comparative incidence of leprosy in this and other foci of the disease, a small table is appended:

TABLE XIII.

	No. cases known living in focus	Cases reported during year
Local focus (1918) (own data)	26	8
*State of Texas (1918)	18	0
*New York City (1918)	23	2
*San Francisco (1918)	19	7
*State of Minn. (1918)	10	2
*United States (1918) (continental)	209	63

*Data from Rep. Surg. Gen., U. S. P. H. S., 1919.

From our study we feel confident that there are still a number of unrecognized cases of leprosy living in this focus, yet the foregoing comparison calls attention to the inadequacy of our knowledge of the incidence of the disease in the United States as a whole, particularly when we note the number reported from the entire state of Texas compared with the number in this focus during the same year. Even considering the notorious inadequacy of our knowledge of the prevalence of leprosy in the United States, it seems possible that the actual incidence of the disease in this focus is greater than in most, if not all other of those areas in the United States where the disease is known to be endemic.

Geographical Distribution Over the Endemic Area.—The city under consideration is divided into thirteen precincts. The density of population in each precinct and the incidence of leprosy therein are shown in the accompanying table:

TABLE XIV.

Precinct	Population 1910	Density per acre	Leper population, 1920	Lepers originating in each area	Cases of German descent
1	2,943	22	1	6	3
2	2,810	31	1	2	0
3	2,425	23	1	1	0
4	2,505	24	3	1	2
5	3,228	31	0	1	0
6	4,553	6	8	6	4
7	3,960	2	5	7	1
7½	2,615	12	1	2	0
8	2,609	13	0	0	0
9	2,468	12	0	0	0
10	2,515	17	4	6	4
11	2,352	16	0	0	0
12	1,998	19	2	3	0

It is to be noted that in three precincts we have no record of either past or present cases of leprosy originating therein. It is also to be noted that the distribution of these cases is not proportional to the density of population, and that we can further distinguish several well-defined foci of infection, where a radius of two or three blocks will inscribe all the cases in that area. Thus we can note one such focus in the first and second precincts, another in the sixth, one which lies in both the sixth and seventh precincts, one in the tenth precinct and another in the twelfth precinct. It is also to be noted that the focus in the first and second precincts has very nearly become ex-

tinct, the majority of the cases having either died of moved away, while those still remaining are of several years duration. One focus which lies in both the sixth and seventh precincts appears quiescent, for no new cases have been reported within this area for several years. The westerly focus in the sixth precinct, the focus in the tenth and the focus in the twelfth precincts appear to be active at present, and have contributed the cases recognized within the last two years.

Referring to the high incidence of the disease among those of German birth or descent and noting the place of their residence, it is found that most of these German cases are concentrated in the first, sixth and tenth precincts. This suggests that there may have existed a degree of social contact among these cases, despite some negative histories of contact given to us in reply to interrogations.

Data Relating to Route of Infection. —We have already stated that of the households in which at present are living cases, 19 households have one case; two households, two cases, and one household, three cases. In addition, surveying all of the past or present cases known to us, we were able to secure the following data relative to known association with a case of leprosy prior to the onset.

TABLE XV.

History of contact with lepers prior to onset (45)

Known association with a leper at:	Class A	Class B	Class C	Total
Home	7	0	1	8
Elsewhere	6	1	3	10
Contact not known	10	1	1	12
No data secured	3	4	8	15

In thirty cases we were able to elicit definite information upon this point. Eighteen of these or 60% gave a history of such association prior to the development of their own illness.

Contact with pre-existing cases of leprosy took place under the following circumstances:

Case 5 conducted a rooming and boarding house in which case 30 lived for three months, one year prior to the onset of case 5.

Case 8 went on frequent fishing trips with case 25.

Case 9 slept with case 48 for a period of two months, ten years prior to her onset.

Case 10 associated with a leprous brother-in-law and niece in Mexico.

Case 11 was in contact with her mother, case 43, whose illness was diagnosed as pellagra.

Case 12, as a boy, played with cases 37 and 46.

Case 13, contact with mother, case 14.

Case 14, contact with husband.

Case 15, contact with mother, case 11. In this family there are three generations of leprosy cases.

Case 17 and 18 are two brothers whose onsets were practically simultaneous. Contact with mother, case 19.

Case 21. A grand-daughter of case 19 and niece of cases 17 and 18. This is a second instance of three generations of leprosy patients in one family.

Case 25 was, as a child, associated with cases 17 and 18.

Case 40 is a brother of case 48.

Case 41 was in contact with his mother, who probably contracted infection while living in Mexico.

Case 46, slept with his older brother, case 37.

It might be possible that the tuberculous and anesthetic types of leprosy are due to separate strains of the bacillus, each having a different selective localization in the body. If this is the case, it might also be possible that the histories of contact would show that the strain breeds true, i. e., tuberculous cases of leprosy give rise to tuberculous cases, etc., providing the known leprous asso-

ciates were the actual source from whom infection was secured.

Data bearing upon this point are presented in the following table:

TABLE XVI

Type of case with whom living cases were in contact (26)

Living cases giving a history of contact		Living cases not giving a history of contact
Clinical type	Contact known with:	
1. Tuberculous		
4 cases	4 tuberculous lepers	7 cases
2. Anesthetic		
2 cases	1 mixed leper 1 anesthetic leper	3 cases
3. Mixed		
7 cases	3 tuberculous lepers 1 anesthetic leper 1 mixed leper 1 type unknown 1 to both simple types.	3 cases

From this data it would appear that if these cases do owe their origin to contact transmission from cases with whom they are known to have been in contact, the clinical types of leprosy are possiby due to the selective preference of different strains of leprosy for either the subcutaneous or nervous tissues, and which tend to maintain this behavior on transfer.

In view of the inadequancy of our data to explain entirely the grouping of the cases into several small foci on the basis of contact transfer, it may be worth while to consider other possible means of transfer. The only other routes of transmission with which we are familiar that would produce a similiar epidemiological picture are insects. From the short radius of these foci it would appear (1) that the assumed insect has a very narrow radius of activity; and (2) from the relatively few cases that develop in a focus, the insect is not a very efficient means for the conveyance of the organisms. So far as the local insect fauna is concerned, there are three species that command our attention in this connection, namely, *Musca domestica, Stegomyia fasciata* and *Cimex lectularius.*

That leprosy bacilli can possibly be conveyed by insects, especially those which suck blood, would appear possible from the following facts:

(1) The leprosy bacilli are present in the sub-cutaneous tissues of patients at a depth where they could be reached by the proboscis of a blood-sucking insect, or are present in the discharge from ulcerations.

(2) The localization of our cases is suggestive of the activity of known species having a narrow radius of activity. The three species mentioned tend to have such a narrow radius.

Against this view may be advanced the following facts:

(1) The known infections transmitted through the activity of these insects, tend to spread more rapidly with a higher incidence than leprosy, even making allowance for the fact that the former are acute infections while leprosy is chronic.

(2) The known observations upon the presence of leprosy bacilli in insects have given very few positive results. Currie[2] has reviewed the data available upon this point up to 1910 and submitted

some negative data secured by himself regarding mosquitoes. Brinckerhoff[3], Leboeuf[5], and Noc [6] report largely negative observation on mosquitoes, while Thomson[4], Leboeuf[8], and Skelton and Parham[7], report negative results with bed bugs. McCoy and Clegg[8] report positive findings from two head lice captured on a leper. Leboeuf[9] found 19 of 23 house flies fed upon ulcers to be positive, while Honei and Parker[10] found lepra bacilli in both the house fly and the stable fly. It is, therefore, apparent that the idea of insect transmission has little evidence to support it, with the exception of that concerning the house fly. We have previously noted that only one of our present cases is ulcerative. We are, therefore, forced to conclude that the idea of insect transmission is inadequate to explain the peculiar grouping of our cases.

Rat Leprosy.—In this connection we made some effort to detect rat leprosy in the course of the examination of some 23,000 rats for plague. Only seven leprous rats were identified, as proven by the detection of acid fast bacilli in smears. These were all Norways. In the course of the search 14,000 Norway rats were examined. Special effort to secure additional leprous rats from these areas was made without success.

Consumption of Fish.—Some years ago considerable attention was drawn to the consumption of fish in relation to the incidence of leprosy. We secured the following data regarding the consumption of fish from our series of cases:

TABLE XVII.

Consumption of Fish by Leprous Patients (45)	
Fish frequently eaten	11
Fish occasionally eaten	1
Fish rarely eaten	9
Fish never eaten	2
No data	22

This does not appear to support the view that a fish diet bears any relationship to the development of the disease.

CONCLUSIONS

From the foregoing analysis of the data we have collected we draw the following conclusions:

(1) The majority of the known cases of leprosy in this focus have acquired infection locally.

(2) There is apparently a greater incidence of the disease among those native-born of foreign-born German parents than among any other groups in the population.

(3) There is a preponderance of cases among males.

(4) More cases have developed during the second decade of life than in any other age period, though no age group appears to be immune.

(5) The length of residence within the area appears to be a more important factor than age in determining the onset. The majority of cases among those born elsewhere develop the disease during the second decade of residence.

(6) It is uncertain whether the incidence of the disease is undergoing any increase in the area.

(7) In proportion to the population of the area, there is probably a higher incidence of leprosy in this area than elsewhere in the continental United States.

(8) The cases within the area are grouped into several distinct foci.

(9) A major proportion give a history of contact or association with a case of leprosy prior to the onset of their own infection. Known contact transfer will not explain the origin of all the cases or of the peculiar grouping into foci of a narrow radius.

(10) The hypothesis of insect transmission is inadequate to explain the grouping of the cases. More likely contact with unrecognized cases or unrecognized contact with known lepers is responsible for the 40% of cases from whom a contact history was unobtainable.

In concluding we should call attention to the fact that absolutely no official con-

trol or supervision in any form, has ever been exercised over the cases of leprosy within this area.

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SEASONAL VARIATION IN MULTIPLICATION RATE OF MICRO-ORGANISMS WITHIN THE BODY

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That the curve of typhoid incidence, the B. coli content of a polluted stream and the B. coli output of the observer follow the same seasonal variations is shown. There is apparently a variation in the biological equilibrium of the body and a changed rate of multiplication of organisms. There is opportunity here for interesting bacteriological investigation.

THE phenomenon of seasonal variation of disease has so long been familiar as to become axiomatic without need for further explanation. That some relation to the humors of the body existed, which were disturbed at different seasons, was sufficient theory to satisfy the common sense. Sanitary science has been fully engaged in tracing out the sources and modes of infection without investigating the susceptibility of the body to the infection. The startling suggestion by Dr. Charles E. North[1] in 1912 that the altered concentration of blood supply, following thermal changes, might give rise to differences in susceptibility of the tissues and probability of attack, created much interest and opposition. The *à priori* hypothesis without experimental evidence merely offered a physiological interpretation of statistical observations.

While at Fishermans Island, Va., during the year 1914-15, the author had occasion experimentally to infect tanks with his own feces. Great difficulty was observed during the winter in obtaining sufficient numbers of *B. coli* to infect the tanks. The condition persisted for several months until the hot weather approached, when it became a simple matter to get large numbers of *B. coli.* This observation was sufficiently well established by its consistence to suggest that the number of *B. coli* in the intestine also

varied with the season, being more prevalent during the warm weather.

Upon suggesting this experimental observation as confirmation of the hypothesis that the condition of the body varied seasonally to Prof. E. B. Phelps, he became quite interested, because of having found a similar seasonal *B. coli* distribution curve in the waters of the St. Clair, the Detroit, Niagara and St. Lawrence rivers.[2] Since all of these rivers have a rapid uniform flow with a steady population, the cause of the distribution apparently arose from an actual variation in the number of *B. coli* which were introduced.

In order to obtain more accurate experimental data the author began in the spring of 1916 to determine the number of *B. coli* actually discharged by himself as an individual. These tests were conducted through the summer months until a change of detail made it impossible to continue the observations. Sufficient data had, however, been obtained in seven months (Table I) to prove that there was a distinct variation in the bacterial content of the intestine. When these results were compared with those obtained in the river studies, a striking similarity —both in time and degree—was evident. A paper entitled "The seasonal distribution of *B. coli* in a polluted stream" was presented by Prof. Phelps and the author at the meeting of the American Public Health Association in the Fall of 1916. This paper has never been published because the Hygienic Laboratory decided to carry out further researches to confirm the results. With the outbreak of the war, however, the work was abandoned and it does not appear likely that it will be continued. Since the experimental data seem worthy of notice, and the river data have already been published,[2] the results are presented here.

When the seasonal variation of the intestinal content of *B. coli* is plotted on the same relative scale as the seasonal distribution of *B. coli* in these rivers (Chart I), a striking similarity is at once

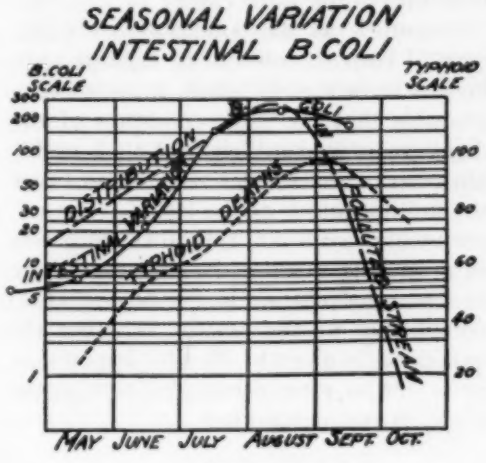

CHART I.

Showing relation between Seasonal Variation of intestinal B. coli, 1916. Seasonal Distribution of B. coli in St. Clair, Detroit, Niagara and St. Lawrence Rivers, 1913, and Seasonal Curve of Typhoid Deaths, Buffalo, 1906-14.

TABLE I.

Seasonal Variation of Intestinal B. Coli.

1916 Month	Number of Samples	Grams per Day	B. Coli—Millions Per Gram Maximum	Minimum	Mean*	Relative No. B. Coli
March	4	83	4.73	.479	1.57	12.0
April	4	123	2.65	.284	.813	6.24
May	7	97	1.02	.254	.944	7.24
June	6	89	7.95	.948	2.72	20.8
July	10	110	96.8	1.67	19.6	150.
August	15	108	265.	1.07	28.2	216.
September	8	99	900.	1.12	21.8	167.

*Geometrical Mean.

observed, as also to the curve of typhoid deaths in Buffalo for the years 1906-1914. The remarkable degree to which these three independent curves are parallel cannot be attributed to mere chance. It must be admitted that the seasonal distribution of *B. coli* in the rivers is related to the similar seasonal variation of *B. coli* within the intestine. Moreover, the increase in typhoid fever at the same season must be assumed to have a distinct relation to the same conditions. It is not necessary to assume that the one is the cause of the other, for it is an equally probable hypothesis that they are both due to the same cause.

Inasmuch as the conditions of existence of both *B. coli* and *B. typhosus* are known to be closely allied, it seems very probable that the same condition of the digestive organs which lead to a multiplication of the former would also favor the multiplication of the latter. The experimental evidence, therefore, indicates in a striking manner the fact that there is a seasonal change in the physiological equilibrium of the body. Whether the real cause is given by North's hypothesis, or is due to some other condition in the body, is not determined.

Generalizing upon this experimental data and the inference which may be logically drawn from it, we may state that it furnishes experimental confirmation of the following principles:

1. There is a seasonal variation in the rate of multiplication of micro-organisms within the body.

2. This variation appears to be due to a seasonal variation in the biological equilibrium of the body.

3. The rate of multiplication of organisms within the body depends upon a susceptibility of the tissues, due to the physiological condition of the organs of the body.

Turning from a study of the sources and modes of infection to an inquiry into the susceptibility of the tissues of the body to infection, a promising field of bacteriological investigation is offered.

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2. International Joint Commission, Pollution of Boundary Waters, Report of Consulting Sanitary Engineer upon Remedial Measures, March 8, 1916, p. 10, Plate I.

Free Milk for Students.—A 'more milk" campaign designed to reduce the number of under-nourished children in St. Louis schools has been instituted by the American Red Cross chapter there, following a study of conditions among pupils. A number of milk stations have been established in the various schools at the request of school officials who discovered a high rate of malnutrition among their students. The milk is served in half-pint bottles to the children at a cost of four cents a bottle. If the children are unable to afford this small sum they are given tickets which entitle them to a bottle of milk free of charge. More than 1,200 bottles are being distributed daily. Crackers are given with each bottle, rendering the nutritive value of this supplemental meal higher than it would be otherwise.—*(J. A. T.)*

Dentists Want Representation in a Federal Health Department.—"If a Cabinet position devoted to health is created, the dentists of America must see to it that dentistry is properly recognized. If the Secretary of Health is a physician, then the first assistant secretary must be a dentist. Dentistry should get busy and see that proper representation is given, otherwise we will be in the same position as the pharmacists—that is, on the anxious seat. The political power of the dental profession is very great and if dentistry is overlooked it will be due to lassitude. Hard luck pursues those who do not think ahead."—Editorial by R. P. McGee, M. D., D. D. S., *Oral Hygiene*, April, 1921. *(J. A. T.)*

OFFICE SYSTEM IN PUBLIC HEALTH ADMINISTRATION

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Failure to locate papers in an office is a symptom of careless thinking, states this writer. If, as a health officer, you have not established efficient office methods and trained the personnel to see that these methods "carry on," perhaps such failure is due to the kind of thinking you have been doing.

"GENIUS," said Robert Louis Stevenson, "is the capacity for taking infinite pains." The good executive must be akin to the genius; for infinite pains is the price of adequate office system. In the office of a public health executive such system is especially vital. Time is saved by finding papers and facts at once, by having a force trained and willing to take responsibility, by stopping leaks, by avoiding wasteful friction and uncertainty, and by reducing the number of complaints. More than this, system makes possible quick decision and rapid action on the part of the whole force, and reduces to a minimum the danger of letting matters slip by unacted on. This improves morale in the office and wins the good will of the public. If in business such good will would mean money or credit, in public health administration it is a factor making for success.

Here is a question to which every health officer should give attention. Whether his office force number two or 200, his office methods will not build themselves. He should be a reader of business publications and their advertising sections, as they will be rich in ideas that he can apply to his own problems. He should be aware of the improvements which are constantly being made in office equipment and supplies. He will then realize that, to secure adequate office system, there is needed, not an expert brought in from outside, but familiarity on his part with the systems in general use, applied common sense, and "infinite pains" to see that things started right do not go wrong.

In the hope of being of practical assistance to the health officer, this article reviews a few of the methods which have been found useful by actual experience in a particular office concerned in public health work. No originality is claimed for them; but in office management it is not originality, but effectiveness and applicability which count.

TWO PRINCIPLES OF GOOD OFFICE MANAGEMENT

Two principles are fundamental to the system in this office:

1. The keeping of filing and index systems which will permit the executive *and each person under him* to find what they need without delay, and which will prevent matters from being lost to view and, therefore, either not acted on at the necessary time or unduly delayed. Papers should keep step while marching through an office. Failure to find papers *and to find them when needed* is a symptom of careless thinking on the part of some one in the office—frequently the executive.

2. The training of subordinates to assume all possible responsibility. The health officer can have good office management without sinking himself in it.

Considerate individual treatment and encouragement of the clerical force will give them an enthusiastic interest in what the executive is trying to accomplish. They will soon be capable of carrying on adequate office systems with a minimum of supervision. The great necessity is for the executive to be willing to delegate to them all that they can manage—even if the work is not performed quite so well as it would have been by himself—and to let them have the credit for what they do.

The essentials, then, are to establish efficient office methods and to train the personnel to take a keen interest in seeing that these methods "carry on." It is always to be remembered that, unless systems are as simple as possible, they will not be worth their weight.

VISUALIZING YOUR DUTIES

In only the smallest office can the executive keep in his mind all of the important matters which are in course of being acted on. He needs to have accessible an up-to-the-minute record of his duties. Moreover, there are a number of matters on which he hopes to act at some future date, but which he wants to keep continually in mind. If he puts these points on cards, he must go over them every day or two to refresh his memory, and as such matters generally have no logical arrangement, alphabetical or otherwise, he will have to finger over a number of cards every time he wishes to refer to a particular matter.

Why not a visible index record? In such indices the cards lie flat, one on top of another, usually in drawers, with a strip at the top or bottom of each card exposed or covered by transparent celluloid. On this exposed portion will go only a brief description of the activity—the "catch-words" which are used in the office in referring to it. When the edge of one card is lifted up, the whole surface of the succeeding card is brought into view, and additional entries can be made on it without difficulty. The cards can either be arranged in different drawers or sections of the file by subject, or, if it is desirable to have the exact status of the matter evident at a glance, the cards can be arranged under headings such as "Not Acted on," "Pending," "Referred to Laboratory," "Held for Next Fiscal Year," or whatever the precise need of the office is. The cards are then transferred from section to section in accordance with the status of the matter. If, on the other hand, it is desirable to keep the subject arrangement and yet have the status appear at a glance, colored signals (tabs) can be used, a different color for each step taken. The tab can be pinned to the card, so that only a narrow strip of it will show, or, in the case of visible files with celluloid "inserts," the tab needs only to be slipped down between the celluloid and the card. Transparent signals can be used which will make it possible to see the legend on the card through the signal.

FILING CLERK KEEPS VISIBLE INDEX

In the office under discussion, a visible index record of important activities (primarily contemplated work) is kept by the filing clerk, who makes entries (1) from the correspondence when it first comes to the office, (2) from the correspondence as it goes to file, with replies attached, and (3) from "references" to other offices, as they come to the filing clerk for mailing. The papers are initialed to indicate that the entry has been made.

No one in the office—not even the executive himself or his immediate assistant—has a more definite idea of the status of matters passing through the office than has this clerk. The significant advantage of having filing clerks possess such information is readily appreciated. They will know the meaning of papers they are filing; their work will cease to be drudgery; and given any satisfactory filing system at all, they will know how to get papers out on short notice, even where the description given them is rather incomplete. They are

also receiving excellent training in office precedents and will later be able to assume higher class work. There is a signal advantage for the other clerks too. The file is accessible to the whole office, and dispels all mystery about what is going on. It may appeal to an executive's vanity to think that he alone knows what his office is doing; but if he has that attitude, he need not expect his clerks to be of real, constructive assistance to him. Where the head alone knows the business of the office, the clerks are automatons, and when he is away, the office stands still. Decidedly, the force should be familiar with and interested in the activities of the office. They may not be able to say what policy should be taken on any matter; but they should know what policy has been taken.

While a given activity is in progress, the card can be placed in a special section of the visible index, or it can be filed in a drawer. In either case the executive has a convenient record of all important work in progress.

When a particular matter is settled or piece of work finished, the card can go into a card file as a part of a permanent record of activities. As years go on, such a record, especially if care is taken to indicate on the card at the proper time where a report of that activity can be found (in a publication, in the annual report, etc.), will be of constant value. Any executive knows how hard it is to find readily what work was done a few years before, especially by a predecessor. The permanent card file of activities lends continuity to the business of an office.

Other uses for visible indices will no doubt occur to the reader in connection with his special problems. They are especially valuable when large numbers of cards need to be filed for ready reference. The eye can find a card quicker than the fingers.

EXPEDIENTS FOR SMALL OFFICES

Some health officers may not feel like going to the expense of purchasing visible file equipment. One of the following expedients may serve the purpose.

1. For 3 by 5 cards, ⅜ of an inch of each card to show, take large sheets of wrapping paper and cut them into strips 11 inches in width. Paste the ends of the strips together to form new strips each about nine feet in length. Each of the new strips will provide for 24 cards. Two and one-half inches from the end of the strips make a fold toward you, 2⅛ inches further down make a fold away from you; continue this alternation until the whole strip is folded. Staples

FIGURE 1

Sketch of visible index in which cards are slipped into pockets.

should then be run down the sides and the middle to form two sets of pockets for the cards. The backs of the strips are then pasted to sheets of board approximately 8½ by 11 inches, one on each side, and the boards are fastened into a loose-leaf binder. The disadvantage of this system compared with the purchasable equipments is that it is necessary to remove the card from the pocket in order to write on it, or to read anything on it except the legend. However, it has the advantage that the legends

appear at the top of the cards. (See Figure 1.)

2. With the following method, the record is written on slips of paper of varying lengths instead of on cards. Cut sheets of paper into strips, 20 of each size, the sizes to be 2½ by 9, 2½ by 8¾, etc., down to 2½ by 5. Divide the strips of each size into four groups, so arranged that in each group the 2½ by 9 will be on the bottom, the 2½ by 8¾ next, and so on, with the tops of the slips in alignment. The four groups are then slipped into a spring back loose-leaf binder. The legends are written on the quarter-inch of the slips which is exposed. The slips on top of any given one can easily be lifted up to permit entries on it. As soon as any matter is settled, the slip is torn out, revealing a fresh one of the same length. The above contemplates 68 entries. Two or three sets can be kept in the same binder by inserting a flexible board between them. In this way as many as 200 entries can be carried at the same time. (See Figure 2.) This method does not make a satisfactory permanent record, nor can the slips be moved from one section to another. Colored signals, however, can be pinned to the slips. Entries can be made and consulted more rapidly than in the case of the first suggestion.

FIGURE 2

Sketch of visible index in which record is made directly on slips of paper of varying lengths.

THE PART CARD INDICES MAY PLAY

Do you index the important letters you write? Do you index published articles to which you may need to refer in the future? Do you index important memoranda or statements setting the precedents of your office? Possibly you have not realized what a valuable adjunct the card index can be to you. The ease of preparation and facility with which the index can be kept up to date are two of its attractive features.

A list of the card indices kept in the office under consideration may suggest to the health officer ways in which he can improve his use of this office method:

1. Index of completed activities. As suggested above, the visible index cards go into such a permanent card file as soon as an activity is completed.

2. Information letter index. Carbons of outgoing letters containing information which may be required in the future go into a special alphabetical file and are indexed by a clerk on cards. Some index of this sort is necessary, if an office is not to lose track of the vast amount of information given out, information which may have required hours to assemble in the first place.

3. Publication index, covering bulletins and articles published by the organization or by its staff.

4. Circular letter index, covering instructions issued in regard to the work of the office.

5. Reference file index. A description of a decimal system file for papers which may need to be referred to in the future is described below. A card index of the jackets and important papers in this file is kept.

FILING INFORMATION WHERE IT CAN BE FOUND

"Where is that report I prepared a couple of years ago on coöperation with

industrial physicians?" asked the health officer.

"I do not remember it," replies his assistant. "Do you know what was done with it?"

"I suppose I dropped it in the file basket."

"There are a number of places where it may be. I'll look."

No doubt the report is somewhere in the office and perhaps it will be located, after the office work has been disrupted in the search. Perhaps a clerk will finger it over while hunting and not recognize it, because it had nothing on it by which it could be easily identified. Perhaps it has been put under an entirely different subject by a clerk unfamiliar with the work of the office.

Any executive would appreciate the opportunity of having reports, memoranda, financial statements, pamphlets, miscellaneous information and other papers to which he will need to refer at some future time filed so that they can be located instantly by a clerk at need. In the office considered in this article, this matter is handled in two ways.

In the first place, the assistant to the executive keeps on his desk a scrap book for papers which must be referred to constantly. As these papers are pasted in the book, they cannot be misplaced; as they are carefully indexed, they can be found readily without the necessity of interrupting a clerk every time a paper is needed. The book takes little room and is available for the use of the other clerks in the office.

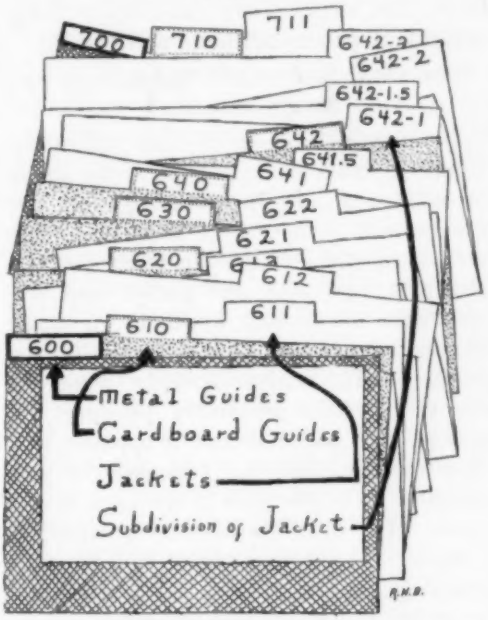
However, there comes into this office a vast amount of material which may be needed for reference at some future time, but which is referred to only occasionally. Some of it forms an invaluable record of office precedent and similar matters. Filed in the usual way by clerks, a large proportion of these papers would not be located at need. It has, therefore, been found necessary to establish a "Reference File" on a rather comprehensive scale, with a special card index. For convenience, a variation of the decimal filing system has been used. Each paper bears a number and can be returned to the file without difficulty.

The file has nine main classes, separated by metal guides, as follows:

000 General
100 Reports of previous activities
200 Data on present or contemplated work
300 Legislation
400 History, policy, and development
500 (Blank)
600 Congresses and Associations
700 Committees and Boards
800 Biological Products
900 Forms.

Each of these classes is divided into nine or less divisions, separated by cardboard guides. For instance, the 000 class would be divided into 010, 020, 030, etc. The jackets come under these divisions, and the third figure in the number represents the jacket. If one jacket

FIGURE 3



Sketch of arrangement of sample guides and jackets for decimal filing system. (Legends omitted for simplicity.)

is 012 and another 013 and it is desired to insert a jacket between them, the number 012.5 is used and an unlimited num-

ber of insertions can be made in the same way. Occasionally a jacket will become too full for convenience. It is then subdivided, the jacket becomes in reality a guide, and jackets somewhat less deep are placed behind it, their numbers being separated from the main number by a hyphen. For instance, if jacket 472.5 is subdivided, the resulting jacket would be 472.5-1, 472.5-2, etc. It will be observed that the hyphen plays the part of the decimal in the usual system, while the decimal is used here to permit a large number of jackets in each division. (See Figure 3, preceding page.)

This system requires filing rigorously by subjects—quite an undertaking. There will naturally be a typewritten outline of the guides and jackets, additions being made when new guides or jackets are required. In this office it was found that, while the assistant necessarily chose the guide and jacket headings in the first place, the clerks were capable of filing individual papers without assistance.

HOW EACH IMPORTANT PAPER MAY BE EASILY INDEXED

Presumably a file of this character would at least have an index, on cards or otherwise, of the headings on the guides and jackets. If cross-reference sheets are used in the file itself (letting the paper go into one jacket and the reference sheet into another), a more exhaustive index could generally be avoided. The writer, however, wanted a file that would invariably produce the goods. He also felt that if a paper was worth filing at all for reference, it was worth a little attention at the time it was filed. He has, therefore, contrived a compromise between merely indexing the headings on the guides and jackets and indexing the individual papers.

In the first place, there is a card index of the headings themselves; but where a paper of any importance is to be filed, it is briefed on a distinctively colored slip pasted or stapled across the top of the document, and the principal words of the brief are indexed by a clerk on cards to be filed with the other index cards. Take, for instance, a paper reporting the cost of a malaria campaign in a certain section of a city for a given period. The brief might read:

"Statement of Cost, Malaria campaign Greenwich addition summer 1920. Compiled by Stone. Campaign conducted by Henry. (Financial data—Mosquitoes—Ditching costs.)"

Words to be indexed are underlined. In parenthesis will be added subjects not appearing in the title, but under which the paper should be indexed. This brief would make the paper clear to the clerks. Since it would carry the decimal number of the jacket in which it was filed, there would be practically no danger of its being misplaced. If the executive later desired to destroy the paper, a clerk could withdraw from the index file the cards referring to it, because the paper would bear on its face the subjects under which it had been indexed, possibly years before. All that the health officer or his assistant would need to do under this plan would be to dictate the brief, indicating the words under which it should be indexed; and yet months after filing, the paper could be brought forth, almost automatically. The file needs little upkeep attention from the executive.

Does this look like too much system—too many cooks? Think of having filed in an orderly manner that mass of typewritten and printed memoranda and statements that clutter up so many offices and are unintelligible except to the person who was originally concerned with them. Such a reference file builds for the future.

OTHER SUGGESTIONS WHICH MAY SOLVE YOUR OFFICE PROBLEMS

Space will not permit a discussion of all of the methods used in this office for the transaction of business. Not all of them would be suggestive to the health officer, and no doubt some of them could be simplified or improved. By way of conclusion, however, it would seem well to summarize briefly a few of the meth-

ods not covered above. They may suggest a way out of an office problem that has been troubling you.

1. Outgoing letters go from the stenographers to a clerk in order that all typographical errors may be caught. This relieves the executive and his assistant of the necessity of watching for such errors. It also has the advantage of keeping that clerk thoroughly familiar with all action taken by the office.

2. To prevent failure to take action at the proper time, the office has a "Tickler" file. Colored sheets referring to any particular matter go into this file, carrying at the top a certain date and the initials of the person to whom the paper is to be given on the date indicated. When desired, an extra carbon on paper of the same color can be made of any outgoing letter; this will then be filed for attention under a certain date, permitting a follow-up letter if necessary at that time. The "Tickler" file can be used by any clerk, and is used by most of them. Sheets are filed for many of the important matters which are pending, the actual correspondence going into a pending file, arranged by subject. If the correspondence itself were to go into the "Tickler" file, it would be lost to view until the date it carried. If the matter has not been settled by the time the colored sheet is returned, it is either followed up or the sheet is filed for attention on a future date.

3. Clerks are requested not to keep individual files. They make use of the general files, and in this way when the clerks are away papers are not hidden in drawers when they should be getting attention. Desks are kept clean of all but passing papers. The Visible Index is used for a number of purposes by the clerks, and the records kept in it are open to easy inspection by all. If a "Tickler" file paper initialed for a clerk comes to attention while he is absent, it goes to the person covering his work, or to his immediate superior.

4. Do you have difficulty in getting your clerks to continue to follow instructions once given them? To avoid this difficulty, the office in question issues a set of numbered instructions which are routed to each desk once a month, read, and checked by the personnel. Systems once organized therefore keep going.

5. The assistant to the executive uses a note book which he carries in his pocket. On his desk he keeps under a glass paper-weight, a statement of his duties for the day, one of which is to look through the note book. Items put in the book while he is away from the office are therefore automatically brought to his attention on his arrival.

6. The assistant also keeps a loose-leaf book in which he files abstracts of important articles. The preparing of such abstracts fixes the subject in mind, and as the material is indexed, there is always ready reference to books or articles.

SELLING THE SYSTEM TO THE OFFICE

The health officer faces the fundamental need of educating his force to conduct his business systematically and in accordance with his policies and desires. He is handicapped in comparison with business in that he cannot pay the same salaries. He must, therefore, to a large extent, take untrained material. What can be done with such material by creating the proper coöperative spirit in an office is remarkable. From this point of view, the principles stated above—to give the clerks systems intelligently worked out, based on the precise needs of the particular office, and to train them to carry out these systems—take on a new meaning. It is necessary not only to establish the systems, but to sell them to the office force. It is by the creation of a proper spirit in the office—for want of a better term, this spirit may be called team play—that it will become possible to institute methods and secure the enthusiastic interest of the force. But infinite pains is also the price of team-work.

EDITORIAL SECTION

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DEVELOPMENT OF COUNTY HEALTH WORK

The county health department has definitely demonstrated that it is an essential part of our public health machinery. It establishes a unit of working force in the subdivisions of a state, capable of joining hands with the state board of health on the one side, and with the individual in his home on the other. It affords the machinery for carrying out effectively programs which may be directed to any one of the numerous outstanding public health problems.

Within the past three or four years, approximately one hundred twenty-five counties, representing twenty-one states, have inaugurated county health work on a full-time basis. It is being advocated in many other states, and where necessary, laws permitting it have been submitted for legislative action.

The principal task which now confronts those engaged in this field involves improvement in the quality of the work, and this in turn involves securing a better trained personnel, and improved methods of procedure in dealing with some of the public health problems.

A number of health officers engaged in the work are taking special training in institutions such as the Johns Hopkins School of Hygiene and Public Health in Baltimore. Others are receiving special training at health officers' institutes covering from one to two weeks of intensive training under well qualified instructors.

For the purpose of evolving more effective methods for dealing with the problems relating to county health work, a conference was held December 15 and 16, 1920, at the Johns Hopkins School of Hygiene and Public Health, at the invitation of the School and the International Health Board. Representatives of the United States Public Health Service, health officers from ten of the states which have taken the lead in the development of county health work, faculty members of the School, and others interested in the subject were present. The various problems were dis-

cussed in open session, and a committee for each was appointed to submit a report for the consideration of the conference. The reports as modified and approved by the conference are compact, specific, and represent the combined views of a majority of those experienced in the work. They should be of value to all who are interested in the development of improved health service. Accordingly, they are being published elsewhere in this issue of the JOURNAL. J. A. F.

RELATION OF BIO-CHEMISTRY TO PRACTICAL HYGIENE

It is just 30 years since the first Section, that of Chemistry and Bacteriology, of the American Public Health Association was formed, largely through the activities of Professor Wyatt Johnston of McGill University. The scientific problems in public health at that time were essentially included within these subjects and water supply questions and questions of sewage disposal chiefly occupied the sessions. The outcome of the efforts of these specialists has been the publication of a "Standard Methods of Analysis of Water and Sewage," which in its various editions has been the hand book for laboratory workers in all parts of America.

The rapid expansion, however, of science as applied to public health could not long be limited to these subjects, and since that time amongst other Sections that on Food Supplies and Drugs has been formed and for five years has brought in many valuable reports on all phases of these subjects as they affect the public health. These reports, however, have dealt rather with the macroscopic than the microscopic phases of the subject. Today, however, through the work being done in hundreds of laboratories the problem of foods is being re-studied along quite new lines, based upon scientific facts in relation to the stereochemistry of the hydrocarbons and the vital functions of enzymes. The old chemists had discovered polymerism in organic compounds and taught us much regarding the variation of products through their interaction with other chemicals; but it has remained for the "New Medicine" to indicate the intimate relations of enzymes whether in the food or in the tissues, in order that the meaning of metabolism whether in plants or animals, can in some degree be understood.

Assuming that energy in matter, as the earth became fitted for life on its surface, was adequate to supply vital functions to the simplest organized materials, we need only recall the life functions of the single-celled amœba and thence proceed from the metazoa up to and through the vertebrates to man, in order to estimate the advances in complexity of organization and function, based upon the differentiation of the cells, whether those of the blood or of the tissues nourished by it and which reach their climax in the pyramidal cells of the brain cortex where thought is elaborated. It is this increasing exactness of our knowledge, which is making real advances possible in public health, whether it be in the bio-chemistry of milk and other foods or in the complex bacterial actions which are carried on in the sewage septic tank. We used to say foods were composed of proteins, fats and hydrocarbons and that they were acted upon by saliva, gastric juice and the *succus entericus*. Today it is of much greater importance to know of what saliva is composed or what is pancreatin and why does either of these activate on food and how?

For forty years we have been analyzing milk into its three constituents, have been making butter and cheese, have certified to the bacterial contents of milk and its freedom from *B. tuberculosis*. This has meant much, but what has it told us of its more intimate biochemical constituents, of its casein and its caseinogen and the essential actions on these of the juices of the digestive tract and yet more of the influence of the vitamines contained in the milk, which seem to be for us elusive mysteries of Nature's laboratory? It is, indeed, all a new world, hitched so far as personal hygiene is concerned to that yet more mysterious

entity spoken of as the vegetative or sympathetic nervous system of man. Barring the essential enzymes in the food, this seems in itself a lifeless thing as regards the human system; yet it is subject to the caprices of a dozen biochemical products, which activate or are inhibited by that elusive something we speak of as "mind."

Why, for instance, should the sight of or the thought of food set the parasympathetic nerves to work and allow certain glands of the mouth to pour forth their highly organized cell contents, or yet more, how does the delicate control of the autonomic system need to be constantly exerted over these and other endocrine glands, that they should be enabled to supply exactly the necessary amount of enzymes for our daily needs.

But equally elusive is the bio-chemistry of the enzyme itself. What kind of prescience should indicate to a something we can scarcely yet analyse, its duty in the catalysis of foods? Buchner seems indeed, to be approaching the solution of the problem when he can show that the growth of yeast produces an enzyme, a natural something which can be expressed from yeast cells, and which instantly induces alcoholic fermentation. This discovery has resulted in the broad generalization that all chemical reactions mediated by cellular activity are due to a similar mechanism and thereby all intermedite metabolism in plants and animals is explained. Possibly!

It is in this direction we turn for an explanation of the marvels of immunity and anaphylaxis and the further insight into those mysterious somethings spoken of as antibodies or antigens, the amboceptors and complements, terms which are daily being used in the laboratories and are gradually coming to have some meaning for the uninitiated. So it is that we see the dreams of Duclaux and Pasteur coming true through the investigations of such men as Osborne, Mendel and other workers amongst us, who if they cannot exactly tell us what mind is, can at least, indicate for us something of the delicate metabolism of the body governed by it and so add something to the armamentaria of our public health defences.

PETER H. BRYCE.

PRESIDENT HARDING AND PUBLIC HEALTH

Like Theodore Roosevelt, President Warren G. Harding believes that the nation's health is our greatest asset. With a view to coördinating the health and welfare activities of the government he has asked Brigadier General Charles E. Sawyer, his personal physician, to make a study of all such activities. In an interview with a representative of the JOURNAL, General Sawyer stated that a consideration of the subject of public welfare involves three questions which are closely related. They are education, public health, and social service. These three matters are being studied as the foundation upon which to build the superstructure of public welfare, and if the survey proves it worth while, there will be a special government department under which these affairs will be carried on. General Sawyer made the following statements, which are quoted verbatim:

"The President is whole-souled and generous and has at heart the desire to increase the public welfare. It is his ambition to make the United States exemplify the best in welfare as well as in all other departments pertaining to the government. He regards the public health as the American nation's greatest asset. It is his desire that all official agencies in public health should be so brought together as to create the greatest efficiency and so help to make us the strongest people of the world, both mentally and physically."

General Sawyer also expressed his own personal opinion that there was nothing more important in government than the public health.

J. A. T.

LETTERS TO THE EDITOR

EDITOR AM. JOURNAL OF PUBLIC HEALTH:

I wish to acknowledge the justice of the exception taken by Dr. Wendell C. Phillips to the misstatement made in the *Bulletin of the New York Medical Association* for October, 1921, in relation to the Narcotic Drug Bill endorsed by the Medical Society of the State of New York and known as the Cotillo Bill.

The misstatement copied in your JOURNAL and to which Dr. Phillips now takes exception was as follows: "This bill which would have deprived the physicians of this State of the right to treat cases of drug addiction at any stage of this disease except under institutional restraint was also advocated and offered by the Medical Society of the State of New York."

Dr. Phillips' correction was published on the eve of a hearing before the Governor of New York on an identical measure passed by the Legislature of New York and known as the Fearon-Smith Bill.

This bill had the solitary endorsement of the Medical Society of the County of New York. It was opposed at this hearing according to the reported accounts by all the other County Medical Societies of the State under the lead of Judge Cornelius F. Collins of the Court of General Sessions of this city.

At this hearing Gov. Miller plainly indicated by his examination of Dr. Wm. P. Healy, the spokesman for the New York County Medical Society, that he took the view that the clause in the bill favored by this society and which Dr. Phillips quotes in his letter to you "to treat such cases by personal administration of narcotics by the physician" did practically prevent physicians from treating such cases even if his "right" to do so still remained. If the word privilege had been used instead of the word right in the phrase objected to by Dr. Phillips its correctness could not have been questioned where the form of treatment, as was shown at this hearing would have required from two to six visits a day either to the patient by the physician or vice versa.

In excuse of this misstatement it may be said that this issue of the *Bulletin* was got out hastily on the eve of the Gubernatorial election in New York State and sent to the 15,000 physicians of New York to advocate the election of Judge Miller "not as a political matter but as a matter of professional concern to every physician in the State." This stand was taken as a protest to Gov. Smith's persistent advocacy of Compulsory Health Insurance and on account of the inhuman, illegal and unscientific act of Compulsory Registration of Drug Addicts by his Narcotic Drug Commission in the City of New York.

In only three cases was the justice of this action questioned by the physicians addressed. One of the objections to this course was made by a Deputy Commissioner of Narcotic Drug Control, another was made by a private practitioner and the third by Dr. Wendell C. Phillips in your columns.

Judge Collins sentenced the first and only physician convicted of a technical violation of the drug laws of the State of New York in correction with the keeping of his records. This was about three years ago and although this sentence was suspended the change in the attitude of the local judicial authorities can be judged by the position taken today by Judge Collins in regard to the rights of the physicians in prescribing for addicts at the hearing before Governor Miller. Everywhere else in the State of New York a similar change has taken place except in the Councils of the Medical Society of the County of New York.

The same form of medical educational missionary work which has been so successful elsewhere still remains to be done in this the last remaining place to resist its influence.

JOHN P. DAVIN, M. D.,
Exec. Sec'y, N. Y. Medical Association.
New York City,
April 27, 1921.

BOOKS AND REPORTS REVIEWED

Mental Self-Help. *Edwin L. Ash, M.D., M. R. C. S. New York: The MacMillan Co., 1920. Pp. 119. Price, $1.60.*

This book presents in simple form and language advice as to mental health. While a great many of the recommendations sound like truisms, their repetition will certainly do the inquiring mind more good than many of the more elaborate hypotheses advanced in recent times.

There is a decided religious trend to the book, showing intimate connection between medicine and religion in the philosophy of life. Much of the hustling and bustling of the modern times is decried and simplicity of living recommended. A wholesome book.

A. W. STEARNS, M. D.

✣

Everyday Mouth Hygiene. *Joseph Head, M.D., D.D.S. Philadelphia: W. B. Saunders Co. Pp. 67. Price, $1.00.*

Considering the recent emphasis placed upon the importance of the mouth as a source of secondary infections affecting the bodily tissues, there have been fewer new publications preaching the doctrine of mouth hygiene, than might be expected. Books on Mouth Hygiene issued in the past have covered the subject so comprehensively that average readers would not attempt to digest them. Some of the small leaflets of dental toilet instruction have, on the other hand, been so brief as to fail to excite the reader's interest. Dr. Head's volume seems to strike a happy medium in the length and thoroughness of its treatment of the various phases of the subject.

We experience a pleasant relief from the diction that too often comes to the public from professional men who are in the habit of writing essays for presentation before scientific audiences. The text expresses the subject matter in terms easily understood by the average layman and, on the whole, the book is interesting as well as instructive.

Great stress is laid on the proper use of floss silk as a cleansing instrument and a rapidly increasing number of dental practitioners will agree with the author in his opinion that, "dental silk, properly used, is far more important as a means of cleansing and preserving the teeth and gums than the tooth brush."

Unfortunately a special form of tooth brush having one-quarter inch bristles is insisted upon as the only type that will effectively meet requirements. We believe that a work addressed to the public should express the consensus of professional opinion on such a point and the majority of dentists would not recommend a brush of this shape for general use.

On the whole, the book, *Everyday Mouth Hygiene*, is a valuable addition to the literature on this important subject.

EDWIN N. KENT, D. M. D.

✣

Industrial Housing. *Morris Knowles. New York: McGraw-Hill Book Co. 1920. Pp. 408.*

When an industrial company decides to build housing accommodations for its employees, it is entering into an entirely new line of business, and it too often does not appreciate its complexities and the value of expert advice. Until recently one practical difficulty has been that in order to get such expert advice it has been necessary to consult real estate men, architects, town planners, engineers, contractors and builders. Their various recommendations usually conflict and the industrial manager who is not a housing expert finally has to use his own judgment in harmonizing their various opinions, or else rely upon the advice of only one or two of said experts, which may be rather prejudiced or limited. The result is that good housing on an economic or financially sound basis is rarely realized in industrial housing. The houses are either badly built or arranged, or the site is poorly chosen or planned, or the cost of the houses or development is far in excess of what it should have been. Only recently have housing companies been formed whose business it is to combine the work of the experts in different phases of the housing problem, so that the industrial manager can obtain the best practical results by employing a single company to build the houses rather than follow the old method of consulting numerous experts and then be unable to decide wisely which advice to take.

Mr. Knowles' book on "Industrial Housing"

shows a rare combination of a thorough understanding and appreciation of all the most important elements necessary for good houses and a knowledge of the practical methods of reaching the best results. For a housing company or for an industrial manager who is in a dilemma regarding a housing problem, it is a most valuable book. Not only are the essentials of the best housing standards clearly shown in considerable detail, but all practical problems are considered. As Mr. Knowles hoped, the book not only shows "the need of studying all factors, but the probable weight needed to be given to each; with the result that a happy and judicious decision will result in any given case after a review of all the conditions." He gives not only the factors involved in deciding upon the best site and methods of town planning, but he shows how the streets, pavements, sewerage systems, and other utilities should be constructed, and how the disposal of garbage and waste should be arranged. A combination of pleasing design of houses and economic cost is shown to be not only possible, but practicable, and the problems of disposal or management of the houses when completed are wisely set forth. If more housing developments should be built with a clear understanding and following of advice such as Mr. Knowles gives, there would be far less cause for abuse of "industrial housing" and for regulation of housing for the safety and health of the public.

HENRY R. BRIGHAM.

✣

Epidemic Respiratory Diseases. *Opie, Blake, Small and Rivers. St. Louis: C. V. Mosby Co., 1921. Pp. 402. Price, $6.50.*

This book is a partial account of the work done by the commission of army medical officers which was detailed to study pneumonia at Camp Funston and Camp Pike. Besides the above officers, Maj. Allen W. Freeman was a member of the commission and he will publish a separate report on the epidemiology of influenza and pneumonia at Camp Pike. The present volume deals chiefly with the bacteriology and pathological aspects of influenza, bronchitis and pneumonia, but the particular merit of the work is that, all along, the laboratory findings are correlated with the epidemiological data. Methods of control, too, are not neglected.

The bacteriology of influenza receives much attention and the authors are among the comparatively few who are swinging back to the idea that Pfeiffer's bacillus is the causative agent. They certainly show that it is found with very great constancy in the disease and, though by no means claiming that the demonstration is conclusive, they present evidence which is very convincing. The last chapter deals with the pathogenicity of the bacillus for monkeys.

The different types of pneumonia occurring in non-epidemic periods as well as in connection with influenza and measles were carefully studied and are discussed in connection with the clinical picture and the epidemiology. A very vital question for those interested in preventive work is the source of the germs causing pneumonia. Are they the pneumococci and streptococci commonly found in the mouth and which become more actively pathogenic because of lowered resistance of the subject, or are they more virulent types spreading from man to man by contact and droplet infection. The relative importance of these sources of infection receives critical consideration.

The etiology of pneumonia is still too imperfectly understood for health officers to formulate methods of control which are assured of success. Studies like these, repeated at different times and in different places, are needed to complete our knowledge of this group of diseases. CHARLES V. CHAPIN, M. D.

✣

Types of Mental Defectives. *Martin W. Barr, M.D., and E. F. Maloney, A.B. Philadelphia: P. Blakiston's Son & Co., 1920. Pp. 179. Illustrated. Price, $3.00.*

This is a very interesting case record of defectives. A great many different types are described and illustrated, giving the reader a rather clear idea of the different degrees and types of feeble-mindedness. Much of the modern advance in this subject has been omitted.

Heredity includes many unrelated things. Prenatal influence is frequently mentioned in idiocy; epilepsy as a complication is passed over; the statement that a mother's second cousin became insane because of masturbation is given a place in etiology and so, while the book is readable and useful its form and subject matter are somewhat antiquated.

A. W. STEARNS, M. D.

✣

Teaching the Sick. *Manual of Occupational Therapy and Re-education.* George Edward Barton. Philadelphia: W. B. Saunders Company. Pp. 161. Price $1.50 net.

In the preface the author states that the

purpose of the book is "to give a clear, concise and truthful account of what has been actually accomplished in the way of Occupational Therapy and Re-education." These facts have proved themselves through the personal need of the author, and his further dealings with the sick and with those teaching the sick.

The first thirty pages give a very general outline of the fundamentals of occupational therapy. That "there are no more cripples except of the will," has been proved again and again among the disabled, especially in our more recent work among the wounded and crippled soldiers during these past five years, and much of the restored courage and renewed activity is due to the early application of occupational therapy. The author points out that the "needs of war have not exceeded the needs of peace," and that the same principles apply to the reconstruction of all sick people. It is clearly emphasized that the beneficial therapeutic effect must be the first consideration in giving any kind of work to the patient; "The true relation of the work of the sick to that of the well man is not that of the percentage of normal labor which the sick man performs, but it is the amount of work above zero which has been performed."

There follow quotations from the French Minister of Agriculture showing the need in that country for the "return to the land," how it has been encouraged in every way and the splendid results accomplished by the crippled French soldiers. This the author has made applicable to the United States, and the last two-thirds of the book cover the specific work carried on at Consolation House, but showing what could be done by the sick men throughout the country were they trained to take up and successfully reclaim the abandoned lands.

A very helpful and lucid treatise is given on mechanical drawing and how from very elemental beginnings it can be made an asset in almost every trade in life, but especially developed along the farming lines.

Granted its very real value, it would seem as if in the accentuation of mechanical drawing the author is contradicting his knowledge that the sick are difficult to interest and to handle. There are thousands of sick whom the teacher with all possible tact and skill could never interest in mechanical drawing however presented and disguised. And though women have worked with it and have eventually built pigeon houses, it is obviously not the type of work for which the majority of them are fitted or in which they are interested. Many who have worked with the sick find that the knowledge that the work will be of future value to them is no stimulus whatever. They are often sick of their work and everything allied to work is shunned. The contact between patient and teacher is in that case made through the appeal of some color or object possibly with little educational value, but which means an article quickly completed and so far as possible, of artistic value and good craftsmanship. Basketry, weaving, modeling, chip-carving, etc., are only permissible, according to the author, if necessary for the first step in the "rebirth of the desire to do," after this it would seem as if the development of wood work as it pertains to the needs of those interested in farming was the ultimate object of re-education.

Books on Occupational Therapy are still few and although in this small volume the author's outlook for the patient is somewhat circumscribed there is no doubt that directors and occupational therapy aides will find in it much of real value, both theoretically and practically.

HARRIET A. ROBESON.

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Optimistic Medicine. *By a former Insurance Man. Phliadelphia: F. A. Davis Company. 1920. Pp. 318. Price $3.00.*

This is a well-written and sensible book. One can see no good reason why it should be anonymous. It is addressed primarily to the physician. Its main thesis is that practitioners have generally missed large opportunities for service in the capacity of advisers and instructors in matters of hygiene. They have narrowed their attention too strictly to the passing conditions for which they have been consulted. An attractive picture is drawn of the family doctor, knowing the constitutions as well as the maladies of his patients and by his occasional counsel saving them from many misfortunes. It is urged that he has too often refrained from assuming such a function through fear of seeming officious or of soliciting employment. The argument is developed at length and with a wealth of examples.

PERCY G. STILES.

ASSOCIATION NEWS

A. P. H. A. JUBILEE VOLUME

A volume portraying the history of Public Health during the past half century is to be issued in the Fall of 1921 in commemoration of the fiftieth Annual Meeting of the Association, a Jubilee Volume. The book will cover some four to five hundred pages and will be composed of about 20 essays, each written by a specialist in his branch of Public Health activity.

While the volume will be devoted primarily to the developments of Public Health during the last fifty years, it is to be expected that the authors will naturally portray a background of the developments prior to 1872, when the Association was organized.

The nature of the volume is best indicated by the following table of contents, the titles in which are not absolute, the authors having the liberty to change them to some extent.

1. Microbic Theory of Disease and Its Utilization in Public Health Work. Prof. F. P. Gorham.
2. A Half Century of Progress in Life Prolongation. F. L. Hoffman, LL. D.
3. Quarantine and Its Effect on Public Health. Surgeon General H. S. Cumming.
4. State and Municipal Control of Disease. C. V. Chapin, M. D.
5. Collection and Utilization of Vital Statistics in Public Health Work. W. H. Davis, M. D.
6. Water Purification and Its Effects on Public Health. Prof. G. C. Whipple.
7. Garbage and Sewage Disposal and Its Effect on Public Health. Rudolph Hering, D. Sc.
8. Control of Offensive Trades and Trade Wastes in Its Effect on Public Health. Prof. E. B. Phelps.
9. Inspection and Control of Foods, and Their Influence on Public Health. Carl L. Alsberg, Ph. D.
10. Milk and Its Influence on Public Health. C. E. North, M. D.
11. Child Welfare and Conservation of Infant Life. Philip Van Ingen, M. D.
12. Industrial Hygiene and Its Effect on Public Health. George M. Kober, M. D.
13. Housing and Building Laws and Their Influence on Public Health. Lawrence Veiller.
14. Conservation of Foods by Cold Storage, Dehydration, Canning, etc. Prof. S. C. Prescott.
15. Insects as Carriers of Disease and Their Relation to Public Health. L. O. Howard.
16. Ventilation in Its Relation to Public Health. George T. Palmer.
17. History of the American Public Health Association with Biographies of Deceased Past Presidents. Dr. Mazyck P. Ravenel, President of the Association.
18. Fifty Years History of Public Health Work in the Dominion of Canada. Dr. Peter H. Bryce.
19. Fifty Years History of Public Health Work in the Republic of Mexico. Dr. A. B. Vasconcelos, Editor of the Medical Gazette of Mexico.
20. Fifty Years History of Public Health in the Republic of Cuba. Dr. John Guiteras.
21. History of the New York Board of Health. Dr. Stephen Smith, First President of the Association.

The intention is to sell this volume to the members of the American Public Health Association at cost. Non-members may obtain the volume by paying the customary subscription price for volumes of this type. Further announcements will be made during the coming months.

Hotel Astor will be the Hotel Headquarters of the Fiftieth Annual Meeting of the A. P. H. A. A very important set of Programs is in preparation. Have you made up your mind to attend?

REPORT OF THE COMMITTEE ON SMALLPOX

Read before General Sessions, American Public Health Association, at San Francisco, Cal., Sept. 16, 1920.

[In reading this Report Dr. Charles J. Hastings, Chairman of the Committee, stated that he was probably appointed on account of a desire for information on the outbreak of smallpox at Toronto in October, 1919.]

For years Toronto has been practically free from this disease, in fact it was not unusual for twelve months to pass without a single case. An epidemic in Montreal in 1885, at which time there were more than 3,000 deaths, and following that a number of cases occurred in Toronto with a comparatively high death rate.

This, as is usually the case, resulted in our population being well vaccinated. Even the Board of Education was so intimidated that it enforced compulsory vaccination of all children before entering school. However, the epidemic had not long subsided when politics began to assert itself, resulting in the repeal of this order, and consequently when smallpox struck our city last year, it had an exceptionally fertile field, a huge population of unvaccinated children and adults.

In presenting this report, we feel that it would be a reflection on your intelligence even to refer to the controlling influence of vaccination on smallpox, inasmuch as no one who is capable of intelligently understanding and passing sane judgment on any problem can longer question the fact that there is no other problem in the field of preventive medicine and no other scientific fact so conclusively demonstrated as that of the controlling influence of vaccination and re-vaccination over smallpox.

Your Committee, therefore, wishes to draw attention to the difficulties that one encounters in an epidemic of this exceptionally mild type of smallpox, which has been distributed more or less over this Continent for the past 20 to 25 years.

The most striking feature of this type of the disease is the fact of its continuing so attentuated through all these years. It is true that Jenner, Welch, Schamberd, Sydenham and other early writers were familiar with this mild type of the disease; in fact, in the eighteenth century there were different outbreaks so mild that the mortality was as low as from one-half to one per cent. However, these milder forms did not continue and were usually followed soon after by a much more typical form of the disease, and with the usual high mortality.

An interesting incident occurred in this connection some eight years ago in Carbondale, Pa., where there was an extensive outbreak without any deaths; and at the same time smallpox of an European importation, a much more severe strain, developed in Pittsburgh, with a mortality of 27%.

Toronto Epidemic.—Scattered cases occurred in our city as early as June, 1919, but did not take on epidemic form until the late autumn. As is usually the case, the medical profession was misled by there being a large number of cases of chickenpox in the city at that time, there having been as many as 100 or more cases reported every month during the summer months. However, many of these cases reported were found to be adults and were no doubt smallpox. These cases began to arouse suspicion, in consequence of which some of the physicians began to request that our diagnostician see the case in consultation wherever there was doubt. It was then found that a large number of cases that were being reported as chickenpox were really a mild form of smallpox. The symptoms were the sudden onset, chill, followed by fever, ranging from 102° to 105° within the first 24 hours, headache of a more or less severe type, aches and pains in the limbs and body generally; lumbar pains in about 50° of the cases; nausea and vomiting in about an equal proportion; acute abdominal pains, in some even simulating appendicitis. These symptoms continued for about three days, gradually abating in severity. On the fourth day the patient was, as a rule, much improved, the degree of improvement depending on the severity of the original symptoms.

During the following 24 hours the rash appeared: first, along the forehead or around the mouth, on the inner surface of the forearms, then spreading to the scalp, face and shoulders, taking about 36 hours to reach the lower extremities. Macule and papules had a definite feel to them, turning to multilocular vesicles on the third ay, gradually becoming pustular on or about the sixth day. It was often possible to find only three or four truly

umbilicated vesicles at one time. The pustular stage was well advanced about the eighth day and scabbing began almost at once, leaving in two or three weeks a red scale-covered base without pitting. Little or no rise of temperature was noticed during the onset of the pustular stage, usually not more than from one-half to one degree. Patients would express themselves as feeling fine except for irritation and discomfort from the eruption.

Explanation of Spread.—A community in which the children and young adult population were unvaccinated afforded a fruitful field for smallpox to spread in, either mild or otherwise. Secondly, fears of quarantine, congested living quarters, and the crowding together incident to the onset of cold weather and shortage of houses, all favored the rapid spread of this so-called epidemic of chickenpox. Thirdly, the chief difficulty was one of diagnosis. A large number of the medical profession felt that it was only a severe form of chickenpox, and others that it was not true smallpox, but a hybrid form. Both of these groups seemed to have some grounds for their contention.

Most of the arguments advanced for failure or refusal to diagnose these cases correctly, centered around the character of the eruptions of which there were undoubtedly wide variations. In many the lesions were very few in number, a goodly number having only half a dozen altogether. In some the pustules lacked the pearlike, semi-globular appearance, and were ragged and poorly shaped. Again the vesicles did not by any means always reach the pustular stage. Some became scabs while others went on to pustules, and the shortening up of the papular, vesicular and pustular stages was noticeable in many cases.

In young children the lesions were in the majority of cases few; in fact in most of the cases, the conditon resembled chickenpox much more than smallpox. This was possibly due to the fact that although unvaccinated themselves they had received some immunity through two or three generations of successfully vaccinated parents.

Unfortunately the prodromal symptoms in smallpox very closely resemble those of La Grippe, and in many cases physicians were called and the case diagnosed as grippe, and as soon as these symptoms subsided, did not make further visits, and therefore, did not see the eruption when it appeared. Many of those in the poorer sections returned to work after the prodromal symptoms, and the rash appearing while they were engaged in their several vocations.

Then there was the difficulty to contend with of physicians making a diagnosis of chickenpox. They were in many cases unwilling to change their opinions even when a second case developed.

The exceedingly low mortality rate and the absence of such looked-for symptoms as marked depression, usually seen in the initial stage, and later the characteristic odor, and also the absence of the secondary rise in temperature in the pustular stage, together with the absence of pitting, and also the absence of confluent phases, constituted a very perplexing problem and one difficult to get anything like a reasonable concensus of opinion on, so far as the medical profession is concerned.

Relation of Vaccination.—With regards to the relation of this mild form of smallpox to vaccination, we tabulated several groups. In one group of 238 cases, 210 showed no evidence whatever of successful vaccination. In a larger group of 305 cases, 252 had never been successfully vaccinated. These percentages were also found to hold good for a larger group of 953 cases, and in groups one and two, only six had been vaccinated within ten years.

It is worthy of note that only one case of smallpox was found in the Jewish population of about 40,000, while the proportion in the Gentile population was one in every 754. The whole of the foreign population was comparatively free.

The incubation period in most of these case averaged nearer 14 than 11 or 12 days. The presence of prodromal rash was comparatively rarer, and only half dozen cases came under the notice of the Department. These ranged from a slight erethema in some to an extensive measles-like eruption in others, appearing during the first 36 hours of the initial stage.

One interesting coincidence was seen by the diagnostician of the Department, in which a child, aged 7, had a typical attack of chickenpox, and while the scabs were still present, she developed smallpox, which she had contracted from her father who had just recovered from the disease.

There were in all some eight or ten cases

which reported a previous attack of smallpox. We are not able to corroborate these, however, all of them having occurred where statistics were not avalable, and only one showed any pitting.

The peculiar characteristic odor of the suppuration period was absent in the vast majority of cases.

Lesions on the mucous membrane of the nose and throat were not often found, except in a few of the more typical cases.

The constant appearance of the eruption on the palms of the hands and soles of the feet was felt to be of diagnostic value, owing to the rarity of lesions in these areas in chickenpox.

The presence of the prodromal symptoms to a greater or less degree, in the vast majority of cases, afforded probably the best guide in diagnosis.

Influence of Vaccination of Contracts in the Incubation Period.—Vaccination in the first week of the incubation period seemed to have a definite modifying effect on the course of the disease, while vaccination early in the second week in many cases gave us concurrent vaccination and smallpox, both running a fairly typical course. We had some 70 cases of this character.

We felt from our observations of these contacts that the period for immunity after vaccination had been done was variable, but two weeks was nearer correct than the shorter period which had been previously recognized. Two weeks seemed to be the minimum time required.

Diagnostic Difficulties.—It is a well known fact that chickenpox lesions which remain unruptured may ultimately become pustular. It is also true that smallpox pustules when partially ruptured will frequently assume an oval or irregular shape, making it difficult to distinguish from the unruptered lesion of chickenpox, which has become pustular.

Many of the cases presented at the same time papules, vesicles, pustules and crusts. The lesions were so scant in many that there were relatively as many or more on the body than on the face or extremities. In a well-marked case of chickenpox, the lesions occurring about the ankles and feet, wrists and hands, very frequently present, after full development, a picture of smallpox pustules. My diagnostician had ample opportunity to note this in the cases of chickenpox which developed in vaccinated children in the wards of the Isolation Hospital during the period of the epidemic.

He reports one case in particular, in which the child was removed from the diphtheria ward by the assistant, and isolated for chickenpox. It was the typical, oval, watery vesicle of chickenpox, and he did not consider it necessary to call the superintendent's attention particularly to the case. However, when my diagnostician examined the child, the lesions had scabbed on the body, and those about the ankles and wrists and a few on the soles of the feet presented a picture identical with that of smallpox in the pustular stage.

Another child had been exposed to this case, so we watched for developments. In due time this child developed a typical picture of chickenpox, and only then was my diagnostician satisfied that his assistant at the Isolation Hospital had made a correct diagnosis in the original case.

I might say that the Research Laboratories of the University of Toronto reported on the contents of the vesicles in these cases to be that of smallpox.

Varioloid smallpox, therefore, in the event of an epidemic, may present, especially in the distribution and appearance of an eruption which has not come under observation until several days after the onset, features which closely resemble the mature and unruptured lesions of chickenpox. In such a case, the presence or absence of a history of prodromal symptoms common to smallpox must, and we believe will, accurately determine the diagnosis.

The patient may not always complain of pain in the small of the back, but a history of headache, nausea, chills and general aching pains usually described by the patient as La Grippe, with the eruption appearing after recovering from these earlier symptoms, a matter of from three to five days, is quite sufficient to decide in favor of smallpox.

There were, however, a certain number of cases which were so typical that the taking of a history of prodromal symptoms was considered superfluous but in the case presenting a scant and variegated type of lesions, it is the only point left to fall back on.

Obviously it is always desirable to see the case at the beginning of the vesicular stage if possible. There is then the least possibility of error in diagnosis. The vesicle of chickenpox rapidly attains its full size, and is soft and

velvety to the touch, while the vesicle of smallpox, that is in its very early stage, is very small, pin-head in size and surrounded by a pink areola, almost as large as a five-cent piece. It is firm, almost hard, and when the finger is drawn across it with a little pressure, a scratching sensation is experienced. This is what is meant by the word "shotty" so frequently used in text books. In referring to this "shotty" sensation, they should always specify that they refer to "bird shot."

The earlier vesicular stage is the time when the patient has just recovered from the so-called La Grippe. His temperature is normal, the lesions are fresh, and have not been disfigured by scratching, and his memory of the prodromal symptoms is fresh and accurate. The patient with chickenpox at this stage is feverish, drowsy, and complains of aching pains. The lesions are so different that diagnosis is not difficult.

In the series of cases we encountered in Toronto, the great majority were free from scabs in from two to three weeks, and in many as early as a week or ten days, where the lesions proved abortive. Severity of eruption varied from a semi-confluent case down to a matter of one pock on the upper lip of a child in a family of five in which the three children were recovering from the disease and the parents were in the prodromal stage.

Our conclusions were that Toronto undoubtedly had an epidemic of an exceptionally mild type of smallpox, not chickenpox. Nor was it a hybrid disease. The typical full-blown pustular case was found in the same house as the mild case which presented diagnostic difficulties.

True, chickenpox existed in the city at the same time, but the emergency hospitals were retained for smallpox only. In these hospitals the well-marked cases were cared for in the same wards with the mild ones, without any cross infection. It was unquestionably smallpox in varying degrees of severity, with a greater percentage of the mild type. To call it a hybrid disease is, in our opinion, an effort to provide an excuse for errors in diagnosis. It may have been a source of consolation to some who had difficulties in diagnosis to hope that this was a hybrid disease, something that had never before been known to the medical profession, but there is no evidence to support such a theory.

There were in all more than 3,000 cases reported to the Department, and I doubt not that there were quite that number of unreported cases so that we evidently had between 6,000 and 10,000 cases of this very mild type, which had distributed itself all over the city before it was recognized as smallpox, and in all these cases there was not one single death that we could attribute to the toxemia of smallpox. There were a few deaths from complications of bronchitis, broncho-pneumonia and pneumonia.

Laboratory Diagnosis of Smallpox.—It must be apparent that if we hope to avoid extensive outbreaks of this mild form of smallpox, we must be more painstaking in our diagnosis, and the diagnostician from the Department of Health in all cities should require to see all cases of so-called chickenpox occurring in the adult, in consultation with the attending physician. The possibilities of the laboratories helping out the diagnostician in the future, seem quite promising, as demonstrated by the valuable work done by Tieche of Switzerland and Force of the University of California. Tieche, while in charge of the smallpox hospital in 1907, noticed that applying vaccine and lymph from patients with smallpox or varioloid to his own arm, induced a re-action similar to Von Pirquet's tuberculin skin re-action. It was a small matter, therefore, for him to test on his own arm lymph suspected of smallpox or varioloid, inasmuch as the contents of a vesicle of varicella gave no re-action.

Tieche urges physicians to test their own skin in this way, and if it is in a condition of allergy, like his skin, he will thus have a simple method of control, which he always carries with him. In his ten years of experience with it, this test has proved conclusive in 98% of the cases.

He describes eleven cases in which the findings were most instructive and saved all concerned from annoyance of isolation for smallpox.

He points out also that the eruption of a smallpox group usually takes a centrifugal form, spreading to the extremities, while with chickenpox the location is more centripetal, being more pronounced on the abdomen, chest and face.

To overcome the objections and the possible danger of syphilis, taking the contents of the vesicles from patients, he always takes the

precaution to have it heated to a temperature of 70°C.

The details of these laboratory methods of intra-dermal injection of smallpox vesicle contents into a previously successfully vaccinated human or rabbit, and the results obtained, will no doubt very materially aid the diagnostician. Force has fully demonstrated that rabbits, sensitized by vaccination with vaccine virus, will give a marked intra-dermal re-action to smallpox vesicle contents in 24 to 48 hours, but will not give such re-action with chickenpox vesicle contents.

One difficulty that one sees in the way, so far as an early diagnosis is concerned, is the fact that we have to wait for the full formation of the vesicle in order to get the contents with which to test the case. However, in the border-line cases, it will always be a very decided and valuable aid, particularly in the control of these milder cases.

SMALLPOX IN DETROIT

September, 1920

Dr. Vaughan, Commissioner of Health for Detroit, reports the following as his experience:

1. During the first six months of 1920 there were reported 678 cases of smallpox and three deaths from this cause.

2. The disease is mild. Not more than a dozen cases have been of the confluent type.

3. Only one case, a young woman with previous history of Bright's disease, died as a direct result of the toxemia of smallpox. One death was that of a young infant, another an old person, in both of whom smallpox was only incidental as a cause of death.

4. The cases require about three weeks to clear.

5. Our difficulty is not with getting physicians to report, but in detecting cases who do not go to physicians. At least a dozen full-fledged cases have walked into the Department office for diagnosis.

6. There have been very few, less than a dozen cases of smallpox, previously diagnosed as chickenpox.

7. There have been a few mistakes among physicians who have called true cases of smallpox vaccinia, and in consequence people have been unnecessarily exposed.

8. The smallpox cases are among the unvaccinated. Of 482 cases studied from April 1 to June 30, 382 were never vaccinated in their lives. Forty-four were vaccinated more than eight years prior to the disease, 21 of these with successful scars and 23 vaccinated without a take. Twenty-five cases have been vaccinated within 8 years but without a take. Thirty-one cases were vaccinated after exposure to the disease. In 8 of this number the vaccination was successful. In 23 there was no take.

9. It is the native-born white and colored who furnish the cases. There are relatively few cases among the foreign born.

10. Of the 482 cases from April through June, there are—

178 white males,
144 colored males,
142 white females,
18 colored females.

11. In proportion to population there are 10 times as many cases among colored as among white.

12. Among the white there are 25% of cases in children under ten years—

18% are from 10 to 19 years of age,
22% are from 20 to 29,
16% are from 30 to 39,
19% are over 39.

13. From December, 1919, to March, 1920, 29,535 persons entering Detroit from Canada were vaccinated, mostly without previous vaccination.

14. From April 28 to July 21, two vaccination squads, each consisting of a policeman and a Health Department physician and nurse worked nightly in the downtown districts, where smallpox was most prevalent. They examined 34,900 people, and of this number 6,930 were vaccinated. The balance were able to show satisfactory scars. Very few people refused vaccination. In the territory visited about 20% were considered unprotected against smallpox.

15. The spread of smallpox in Detroit is due:

First. To a recent large influx of unvaccinated newcomers, particularly colored people from the South.

Second. To the running at large of the unreported case.

Third. To the release of vaccinated exposures whose vaccination took place too late to avert the disease.

16. A nurse with automobile service is detailed to follow up every exposure for 21 days subsequent to vaccination to make cer-

tain of a take. In case of negative result the person is re-vaccinated.

17. It has been the custom for a Health Department physician to visit every adult case of chickenpox reported. At times of unusual smallpox prevalence, every case of chickenpox is checked by our diagnosticians.

BORDER QUARANTINE ON ACCOUNT SMALLPOX AGAINST PROVINCE OF ONTARIO

The United States Public Health Service established quarantine at the border, and advisedly so, in charge of Surgeon C. H. Gardner.

An epidemic of smallpox of extremely mild type prevailed in Toronto and elsewhere in the Province of Ontario, from January, 1919, until May, 1920. At the beginning of the epidemic the disease was probably either unrecognized or confused with chickenpox which was prevailing coincidentally in epidemic form. It was not until November that the character of the disease was officially recognized.

About the middle of that month the number of cases reported to the City Health Officer as smallpox amounted to 368. An officer of the Service was therefore detailed to investigate the situation in order to determine what measures should be adopted to prevent the introduction of the disease into the United States.

It was found that, while the disease was assuming startling proportions in the city of Toronto, in the Province of Ontario, the number of cases was quite small although scattered over the Province in all directions. Up to this time only seven deaths had occurred from complications arising out of this cause. Chickenpox had prevailed since January, 1919, more than 100 cases being reported monthly to the Health Department.

It was decided to establish inspection stations at all the crossing points and to require that all travelers from Toronto and other infected points who did not present satisfactory evidence of having had the disease should either present a certificate of recent successful vaccination or be vaccinated at the border. The coöperation of the Immigration Service was secured through the Commissioner at Montreal, and at the beginning of the work the lay inspection of travelers was done by Inspectors of the Immigration Service. The work was opened at 7 a. m., November 26, 1919, and was continued until March 19, 1920. Each station was in charge of an Acting Assistant Surgeon, who either supervised the quarantine work in addition to his usual duties at the station or was a temporary Acting Assistant Surgeon employed for that duty. Vaccination of travelers was done by registered nurses, employed for that duty. Six principal inspection stations were opened; being located at Buffalo, N. Y.; Niagara Falls, N. Y.; Detroit, Mich.; Port Huron, Mich.; Sault Ste. Marie, Mich.; and Ogdensburg, N. Y.

The following personnel was employed for the work at the different stations:

	Nov. and Dec.			Jan.			Feb.			Mar.		
	A. A. Surgeons	Nurses	Inspectors	A. A. Surgeons	Nurses	Inspectors	A. A. Surgeons	Nurses	Inspectors	A. A. Surgeons	Nurses	Inspectors
Buffalo	1	5	4	1	6	7	1	6	6	1	6	7
Niagara Falls	1	5	6	1	5	6	1	5	6	1	5	6
Detroit	2	5*	3	2	7	3	2	7	3	2	7	3
Port Huron	1	4	2	1	3	4	1	4	3	1	4	3
Sault Ste. Marie	1	0	0	1	0	0	1	0	0	1	0	0
Ogdensburg	1	1	0	1	1	2	1	1	2	1	1	2

*1 matron.

The following table shows the number of persons vaccinated at the border inspection stations. It represents but a small part of the total numbers vaccinated as the Canadian authorities as well as private physicians vaccinated many thousands.

These figures, however, may be taken as an index of the tide of travel at the different points, in consideration of which it may be concluded that a protective measure was effectively carried out with but little inconvenience to the great mass of the traveling public and with a minimum of interference with commercial interests.

NUMBER OF VACCINATIONS AT BORDER STATIONS

	Nov. 27 to Dec. 1	Dec.	Jan.	Feb.	Mar.	Tots.
Buffalo	481	2 299	1,507	1,531	984	5,402
Black Rock Ferry Street M. H. Office						
Niagara Falls	449	2,429	2,175	1,220	520	6,793
Upper Bridge Lever Bridge Imm. Office						
Detroit	1,559	9,335	10,521	4,727	3,373	29,535
Windsor Ferry Walkerville Ferry Jos. Campeau M. C. Sta. Gd. Tr. St. Office						
Port Huron.	840	2,464	2,230	1,460	1,620	8,614
Ferry Tunnel Depot						

Sault Ste. Marie		844	376	259	119	1,598
Ogdensburg.	6	265	234	189	137	979
Cape Vincent						
Morristown						
Hogansburg						
Nyando						
Clayton						
Cornwall						
Alexander Bay						
Louisville						
Waddington						
Nine Substations						

Total 52,921

CHARLES J. HASTINGS, M. D., *Chairman.*
C. H. GARDNER, M. D.
HENRY F. VAUGHAN, M. D.

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LIST OF NEW MEMBERS

Proposed for Election to the

A. P. H. A.

May 1 to May 30, 1921, inclusive.

Names of Sponsors are set in **Bold Face Type.**
Names of New Members are set in Light Face Type.

MICHIGAN

W. C. Hirn, Lansing.
John A. Keho, M. D., Bay City.

MONTANA

Miss Wilma Felkner Haynes, Nurse, Forsyth.

NEW YORK

A. G. DuMez, Washington, D. C.
Charles Warren Hooper, M. D., Brooklyn.

OREGON

Frederick D. Stricker, M. D., Health Officer, Portland.

PENNSYLVANIA

Rev. A. Martel, Professor of Chemistry, Villanova.

Martin H. Kuntsen, State College.
Prof. Ray V. Watkins, Principal of State College, State College.

WISCONSIN

H. L. Wilson, M. D., Racine.
F. C. Morgenroth, M. D., Racine.

CANADA

A. J. Douglas, M. D., Winnipeg, Manitoba.
Arthur Rigy, Chief Food Inspector, Winnipeg, Manitoba.

ECUADOR

J. H. White, M. D., Washington, D. C.
Carlos V. Coello, M. D., Med. Officer, U. S. P. H. S., Guayaquil.

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CONVENTIONS, CONFERENCES, MEETINGS

July 11-12, Northern Hotel, Billings, Mont., Montana Public Health Association.

July 12-13, Northern Hotel, Billings, Montana, Montana Association for the Prevention of Tuberculosis.

July 26-28, London, England, International Union Against Tuberculosis Conference.

July 28, Boston, Mass., Massachusetts Association of Boards of Health.

August 16, Rehoboth, Del., Delaware State Medical Society.

August 24-26, Duluth, Minn., Minnesota State Medical Association.

September 1-3, Colosseum, St. Louis, Mo., International Mine Rescue and First-Aid Meeting.

September 6-8, Pueblo, Colo., Colorado State Medical Society.

September 12-14, Hotel Deshler, Columbus, Ohio, Mississippi Valley Conference on Tuberculosis.

September 12-19, Hotel West Baden, West Baden Springs, Ind., American Hospital Association.

September 13-14, Hotel Utah, Salt Lake City, Utah, Utah State Medical Association.

September 13-15, Cornell University, Ithaca, N. Y., Annual Conference of Health Officers and Public Health Nurses of New York State.

September 13-16, Bridgeport, Conn., New England Water Works Association.

September 19-22, Seelbach Hotel, Louisville, Ky., Kentucky State Medical Association.

September 22-28, New York City, Second International Congress of Eugenics.

September 26-29, Montreal, Canada, Canadian Conference on Public Welfare.

September 26-30, Boston, Mass., National Safety Council.

November 14-18, New York City, American Public Health Association.

EMPLOYMENT BUREAU

HELP WANTED

Help wanted announcements will be carried free in this column until further notice. Copy goes to the printer on the 10th of each month for publication on the 20th. Mail to Boston office as early as possible.

In answering keyed advertisements, please mail replies separately to editorial office in Boston, Mass. In replying give age, professional training, salary requirements, previous positions held and three or more references.

Wanted: Beginning the first of September, Assistant Bacteriologist for Municipal Laboratory in a city of about 140,000 population. Must be familiar with microscopical diagnostic work, Wassermann Test, and technique involved in the analysis of milk and water. Salary $1,200, with possibility of increase to the right person. Address Miss Marguerite Bond, Director of Laboratories, Department of Health, Bridgeport, Conn.

Wanted: For temporary position (four or five months), Assistant for routine laboratory work for examination of sputum for tubercle bacilli, cultures of diphtheria, smears for Gram-negative diplococci, Widal typhoid examinations and detection of albumin, sugar and casts in urine. Salary about $100 a month. Address 448, M. L. F., care of this JOURNAL, Boston address.

Wanted: Laboratory Technician capable of doing ordinary city laboratory work, except Wassermanns. Salary $1,500. Apply to Chairman, Board of Health, New Britain, Conn.

Wanted: An experienced bacteriologist to do teaching and experimental work in a large State College. Address 451, C. A. H., care of this JOURNAL, Boston address.

POSITIONS WANTED

Positions wanted announcements will henceforth be carried in this column. The charge is $2 per insertion. Copy should be received at this office by the 10th of the month.

State Health Officer, holding A. B., M. D., Dr. P. H., from standard universities, and with six years' practical experience in public health work along broad lines, desires to make a change. Experience and references furnished. Address 159, S. F. H., care of this JOURNAL, Boston address.

Graduate Nurse, having had executive experience in public health work, wishes position requiring executive ability. Address 164, H. U., care of this JOURNAL, Boston address.

Trained public health man desires administrative position. Graduate of Mass. Inst. of Technology. Municipal health officer for 14 years. Full-time expert consultant for State Board of Health for 3 years. Address 160, W. H. C., care of this JOURNAL, Boston address.

A physician, experienced in city and county public health work, administrative and clinical, with a working knowledge of sanitary engineering, now a field agent, U. S. P. H. S., will be open for engagement as city or city-county health officer August 15 or sooner. Can furnish references from state and federal authorities. Engagement with organization cooperating with U. S. P. H. S. preferred. Address 158, D. J. N., care of this JOURNAL, Boston address.

Bacteriologist with experience in city, state and army technical and administrative work, desires position which will offer greater opportunities for the development of the administrative side of Public Health work than the present position which he holds. Address 162, S. N. R., care of this JOURNAL, Boston address.

Sanitary Chemist of extensive experience in city, state and military sanitation, and food, drug and water-supply control, desires a position of greater responsibility and opportunity. Address 161, E. A. U., care of this JOURNAL, Boston address.

Wanted: Position by laboratorian experienced in routine work, hematology, blood and urine chemistry and serology. Address 163, O. S. K., care of this JOURNAL, Boston address.

Wanted: By a trained and experienced sanitarian, full-time health work; holds Ph. G., M. D., Dr. P. H. degrees; county, state and municipal experience, including administrative and educational phases; best of references furnished; specially trained organizer. Address 165, W. L. H., care of this JOURNAL, Boston address.

Wanted: Position as director of laboratories, hospital, city or group. Thirteen years' experience, eight in hospital and clinic, five in public health laboratory, three of these as director of state laboratory. Graduate M. D., standard university; member A. M. A. Address 166, L. G. A., care of this JOURNAL, Boston address.

TRANSACTIONS OF THE CONFERENCE OF HEALTH OFFICERS AND FACULTY MEMBERS REGARDING PROBLEMS RELATING TO COUNTY HEALTH WORK.

Held at Johns Hopkins School of Hygiene and Public Health, Baltimore, Md., December 15 and 16, 1920.

A conference of health officers and faculty members regarding problems relating to county health work was held at the Johns Hopkins School of Hygiene and Public Health, Baltimore, Maryland, on December 15 and 16, 1920, at the invitation of the School of Hygiene and Public Health and the International Health Board. The following persons were present:

Representatives of the State Health Departments

Alabama: Dr. S. W. Welch, Dr. F. W. Dershimer.

Georgia: Dr. T. F. Abercrombie, Dr. M. F. Haygood.

Kansas: Dr. S. J. Crumbine, Dr. A. J. Warren, Dr. T. D. Tuttle.

Kentucky: Dr. A. T. McCormack, Dr. P. W. Covington.

Louisiana: Dr. Oscar Dowling.

Maryland: Dr. J. S. Fulton.

Mississippi: Dr. W. S. Leathers, Dr. P. G. Pope.

North Carolina: Dr. W. S. Rankin, Dr. K. E. Miller.

Ohio: Dr. A. W. Freeman.

South Carolina: Dr. J. A. Hayne, Dr. L. A. Riser.

Tennessee: Dr. Olin West, Dr. E. L. Bishop.

Texas: Dr. A. P. Harrison.

Virginia: Dr. E. G. Williams, Dr. R. K. Flannagan.

West Virginia: Dr. R. T. Davis, Dr. D. M. Lewis.

Representatives of United States Public Health Service

Surgeon-General Hugh Cumming.

Assistant Surgeons-General J. W. Schereschewsky and A. J. McLaughlin.

Surgeon L. L. Lumsden.

Representatives of Faculty of Johns Hopkins School of Hygiene and Public Health

Dr. C. G. Bull	Dr. R. W. Hegner
Dr. W. W. Cort	Dr. W. H. Howell
Dr. W. H. Frost	Dr. E. V. McCollum
Dr. J. S. Fulton	Sir Arthur Newsholme
Dr. J. H. Gregory	Dr. W. H. Welch

Representatives of International Health Board

Dr. J. A. Ferrell Dr. H. H. Howard
Dr. J. L. Hydrick

There were present also a number of visitors and students.

A number of topics relating to county health work were discussed in open meeting and a committee was appointed to prepare a report on each topic. The committee reports were then discussed, modified and adopted. They are brief, concise and practical and are here published for the information of readers of the JOURNAL.

REPORTS OF COMMITTEES

I. LEGISLATIVE AND ADMINISTRATIVE MACHINERY ESSENTIAL FOR COUNTY HEALTH ORGANIZATION

The county health district should include any city within its limits which has less than 10,000 population. Cities of 10,000 population or more may be included by mutual agreement.

The legislation creating county health districts should conform to the provisions of the state constitution and to important court decisions affecting it and should be in accord with the governmental habits and traditions of the people.

The fundamental purpose of the legislation should be to insure the appointment or election of a properly qualified administrative health officer. This appointment or election may be by a board of health for the district, which board is elected or appointed by appropriate means; by an *ex-officio* board of county officers; or by the state health officer. Wherever suitable means can be devised for placing the responsibility for the election of the health officer upon local authorities, this course should be followed.

The health officer should hold office at the pleasure of the appointing agency, and should be required to furnish evidence of suitable training and experience. This evidence may be in the form of a license or

diploma issued by the state health authority after examination.

The health officer should be clothed with full power to enforce all sanitary laws and regulations, to make special orders and regulations for emergencies, and to take all steps necessary to prevent disease and to protect the public health. Orders and regulations of general application should be made by a local board of health or other duly qualified legislative body.

The health officer should be empowered to employ such assistants and to purchase such necessary equipment as available funds will permit, to dismiss employees, to formulate and put into effect a program of procedure for the district, and in general to perform all executive and administrative functions.

Funds for the support of the county or district health department should be provided on budget, and the usual machinery for levying taxes and for disbursement of funds should be employed. All expenditures should be audited as are other public funds.

Provision should be made by law for the receipt and deposit in the public treasury of funds contributed by voluntary agencies and these funds should be disbursed as are any other public funds.

The payment of state subsidy to local health districts should be contingent upon compliance on the part of the local district with the program of the state health authority.

The state health authority should be empowdered to enforce compliance with minimum standards of organization and efficiency and to prescribe standard forms of records and reports.

A. W. FREEMAN,
K. E. MILLER,
J. A. HAYNE.

II. REPORT OF COMMITTEE ON PERSONNEL AND BUDGET NECESSARY FOR COUNTY HEALTH ORGANIZATION

The immediate organization of county health departments adequate to carry on a complete and efficient program of general preventive work is possible only in counties above the average in population and wealth.

In counties where a complete organization is not now possible, demonstration units under proper supervision, or a health officer working alone may produce demonstrable and valuable results and such demonstrations and efforts should be encouraged in all counties.

Where the population and resources of a county are sufficient to provide a complete organization this should consist of the following personnel: a county health officer, a sanitary inspector, a public health nurse, a clerical assistant.

It is absolutely necessary that suitable and attractive offices be provided for the use of the County Health Department; these should be properly furnished, and equipped with adequate filing facilities. Also of great importance is the provision of means of travel for the three members of the staff who engage in field activities.

In the majority of the counties in the Southern States the above mentioned personnel usually directs its activities, in the main, at first, to the following:

1. Educational work.
2. Control of communicable diseases.
3. Control of soil pollution.
4. Child welfare work, including the medical inspection of school children.

In other sections of the United States where different conditions obtain, these activities may be varied to meet the situation.

Suggested Form of Budget

Salaries:	
County health officer	$ 3,000.00
Sanitary inspector	1,500.00
Nurse	1,200.00
Clerical assistant	900.00
Travel Expenses:	
County health officer	800.00
Sanitary inspector	800.00
Nurse	800.00
Contingent fund	1,000.00
Total	$10,000.00

The county health officer, the sanitary inspector, and the nurse are expected to own the cars they use.

The above budget represents the minimum outlay for each budgetary item.

When public sentiment and available funds render possible other activities or more intensive work on any special line, additional personnel can best be added at the discretion of the county health officer

in the light of his knowledge of local conditions and needs.

The committee is of the opinion that all activities that may be helpful in creating sentiment for a full-time county health department, such as the employment of a whole-time county health officer or public health nurse, should be encouraged.

COMMITTEE ON PERSONNEL

DR. H. H. HOWARD DR. A. P. HARRISON
DR. L. A. RISER

COMMITTEE ON BUDGET

DR. OLIN WEST DR. P. W. COVINGTON
DR. P. G. POPE

COMMITTEE ON TOPICS AND COMMITTEES*

DR. W. S. LEATHERS DR. S. W. WELCH
DR. W. S. RANKIN

III. REPORT OF COMMITTEE ON PROGRAM FOR CONTROL OF COMMUNICABLE DISEASES

The practice in any county or any local jurisdiction must conform to state laws and regulations regarding the reporting and isolation of communicable diseases.

Reports of communicable diseases rendered in accordance with state laws and regulations should be made directly to the county health officer who should forward same to the state authorities. The original records of mortality in the county should be freely and conveniently accessible to the county health officer.

The county health officer should endeavor by every means possible to secure a prompt report of every case of reportable disease. Measures recommended to stimulate reporting are:

(a) Simplifying the reports required of physicians so that they will include only items which are essential and which are ordinarily known to the physician, namely: the diagnosis, name (of patient and householder), color, sex, age, address and date of onset of case.

(b) Assistance in diagnosis of doubtful and difficult cases by efficient laboratory service and by personal consultation when desired.

(c) Prompt and efficient action by the local health officer upon report of a case, thus demonstrating to physicians and householders the importance of such reports.

(d) A system of information through schools to serve as a check on completeness of physicians' reports.

(e) Vigorous prosecution of physicians who persistently neglect or refuse to report cases as required by law.

Facilities for laboratory diagnosis should be such that specimens will be received in good condition and reports returned with sufficient promptness for administrative action. These purposes are ordinarily served by a central state laboratory with one or more branch laboratories according to facilities for transportation. For the diagnosis of diphtheria it may be advisable to utilize such municipal laboratories as may be in operation in the state. In general, establishment of a diagnostic laboratory in each county unit is not advisable in the present stage of development.

In connection with diagnostic laboratory service, the local health officer should be responsible for distributing supplies and containers to local physicians; and he should, if practicable, take release cultures.

The institution of proper control measures requires that each case of communicable disease be promptly visited by the health officer or a representative of the health organization, who is not only authorized to enforce police regulations but is thoroughly qualified to instruct the family in measures of prophylaxis. This ordinarily requires either a physician or a public health nurse.

The occurrence of a case of infectious disease affords to the health officer his best opportunity for educating the patient's family and associates in the prophylaxis not only of this particular disease but of communicable diseases in general; and the utilization of this opportunity by personal advices and distribution of literature is one of the most important features in the control of communicable diseases.

It is necessary in the control of communicable diseases to make a thorough epidemiological investigation of each case. While this will not in all cases lead to conclusions as to the source of infection, it will do so in a certain proportion of them, especially in rural communities, where the avenues of exposure are limited. The chief importance of such study is, however, that the results when carefully analyzed, enable the health officer to evaluate the various factors concerned in spreading infection as well as the efficiency of control measures; and the value of these

*The Committees on Personnel and Budget, after conference, concluded to make a joint report. The report as submitted was not entirely acceptable to the Conference, whereupon the two Committees were sent out to revise the report and membership of the Committee was enlarged by including the members of the Committee on Topics and Committees.

records is cumulative, increasing from year to year.

While it is not yet possible, and perhaps not desirable to "standardize" procedures in epidemiological case investigation, it is practicable and important to secure more general agreement as to the fundamental items and lines of inquiry so that observations made in different areas may be compared. It is recommended, in this connection, that at least those health officers who are in close personal touch, as, for instance, those working in the same state, should attempt to follow reasonably uniform methods.

The enforcement of regulations as to the reporting and isolation of cases of communicable diseases is only one of several lines of attack. An important function of the public health organization is to make such provision as may be necessary for effective treatment, especially by furnishing diphtheria antitoxin and other specific sera and vaccine, and by otherwise encouraging their use. There should also be a sustained effort to instruct the public, especially school children, in general measures of sanitation and to inculcate such habits of personal hygiene as may reasonably be supposed to minimize the danger of spreading infection.

W. H. FROST,
A. J. MCLAUGHLIN,
T. D. TUTTLE.

IV. REPORT OF COMMITTEE ON FILTH-BORNE DISEASES

Your Committee understands that its duty is to propose methods rather than measures and therefore recommends the following necessarily brief outline:

1. A survey for the purpose of determining the present and past incidence of filth-borne diseases and to ascertain the sanitary status.

2. Having obtained this fundamentally essential information, the following procedure should be instituted:

(a) Education with reference to modes of spread of disease and measures of prevention.

(b) Presentation of facts ascertained by the survey.

(c) Sanitation. By this general term we mean to include the safe disposal of human excreta and the provision of a safe drinking water and an uncontaminated food supply.

(d) Typhoid vaccination.

We especially recommend for obvious reasons that the school be made the primary point of attack in educational activities. We further recommend that the school be made the primary point of attack in sanitation for the reasons: (1) that a very considerable percentage of infection by intestinal parasites is the result of soil pollution at schools, and (2) that sanitation of schools provides a good object lesson for the community at large. The school should also be made the center for the administration of typhoid vaccine, since by reaching the school children the program reaches the age-period containing the highest percentage of typhoid non-immunes.

T. F. ABERCROMBIE,
E. L. BISHOP,
M. F. HAYGOOD,
A. J. WARREN.

V. REPORT OF COMMITTEE OF RESPIRATORY DISEASES

Your Committee considers the diseases in this group to be those whose principal lesion is in the upper or lower respiratory tracts, whose specific organism leaves the body briefly in the secretions of the mouth and nose, and which are characterized by coughing or sneezing.

These diseases are commonly spoken of as spray-borne and include such infections as bad colds, influenza, measles, whooping cough, tuberculosis and pneumonia.

In view of the great number of mild and unrecognized cases of these diseases, general measures for their control should be insisted on to prevent their transmission by means of excretions from the mouth and nose of infected persons. The inculcation of habits based on the following rules should be urged, particularly in our schools: Avoid common drinking cup. Don't put into the mouth fingers, pencils or other things that do not belong there. Whenever you cough or sneeze turn the head downward and cover the nose and mouth with your handkerchief.

Specific immunization by use of vaccines is recommended for whooping cough and pneumonia. There is difference of opinion as to the value of the prophylactic vaccines for colds and influenza, although it is believed that they do not do any harm.

Isolation of patients suffering from influenza, measles, whooping cough and pneumonia should be carried out. Those with whooping cough should not be confined to the house.

Concurrent disinfection of the secretion

from mouth and nose of patients with all these diseases is recommended.

Terminal disinfection of quarters used by these patients should consist of thorough cleaning and airing and the use of disinfectant solution. Fumigation is not recommended.

In view of the large part played by lowered resistance in infection with tuberculosis and pneumonia and to a less extent in the case of influenza and bad colds, special effort should be made by those likely to be exposed to these diseases to avoid conditions that are known to lower the bodily strength or resistance.

E. G. WILLIAMS,
J. S. FULTON.

VI. REPORT OF COMMITTEE ON DRINKING WATER

The committee on drinking water reports the following principles to guide county health officers:

Recognizing that safe drinking water is an absolute essential to continued good health, and that polluted drinking water is a most prolific source of disease, every health officer should, by all means in his power, endeavor to see that a safe water supply be within reach of every citizen within his jurisdiction, special emphasis being laid upon the water supply of schools and other places of public gathering.

A safe water supply is to be determined (1) by inspection from a sanitary standpoint and (2) by bacteriological and chemical findings. If the sanitary inspection report is unfavorable the bacteriological and chemical tests may be, and usually are, unnecessary. An open well or one with a leaky top is always unsafe. Such a well should be provided with a pump, a watertight top (preferably concrete), and protection from seepage, the ground around the well being elevated above the surrounding ground.

An open spring is potentially unsafe and should be provided with a water-break which will prevent flood water getting into it. A trench above the spring may serve for this purpose. The spring should, if possible, be closed in and provided with a spout which would permit the securing of water without dipping into the spring.

Every health officer should inform himself as to the laws of his state regarding water supplies, and as to the rules and regulations of the State Board of Health on the subject. He should inform himself as to what the Sanitary Engineering Division of the State Board of Health can do to aid him in improving water supplies in his district and should enlist its service to the fullest extent.

He should inform himself also as to what the laboratory of the State Board of Health can do to help in his water problems. He should familiarize himself with the rules for collecting and shipping water samples for examination and should conform to these rules.

Every county health officer exercising jurisdiction over communities having public water supplies should, in coöperation with the state health authority, familiarize himself with such public supplies, use all diligence to secure the highest possible degree of safety for them, and arrange for regular and systematic laboratory examination and reports on each supply.

A. F. GREGORY,
R. K. FLANNAGAN,
A. W. FREEMAN.

VII. REPORT OF COMMITTEE ON FOOD AND NUTRITION: WITH ESPECIAL REFERENCE TO MILK SUPPLY

Any health program of a comprehensive nature must take into consideration education of the people in the importance of the proper selection of food as a factor in promoting well-being. Fortunately the results of modern research can be easily formulated in language which all can understand. The results of the experimental studies on animals, supplemented by such observations as those of Goldberger and Vœgtlin on the relation of the diet to pellagra leave no reason to doubt that the tendency toward deriving the diet almost wholly from cereal products (in great measure degerminated), fat pork and molasses, is one which contributes to lower the vitality and makes for inefficiency. The remedy for this condition, which is not confined to the South, is first:

The education of the public concerning the value of milk, and the need of the individual, adult as well as child, for a quart of milk a day.

Encouragement of the use of more greens and fruits in the diet. This should be definitely correlated with a plan of gar-

dening which would insure a supply of the necessary food articles in season.

Education of the public concerning the necessity of pasteurizing milk in order to render it safe.

The establishment of higher standards of cleanliness in the production and handling of milk.

Education concerning the necessity of the use of some fruit juice daily in the diet of an infant which is fed pasteurized milk, or milk which is otherwise heated.

E. V. MCCOLLUM,
D. M. LEWIS.

VIII. REPORT OF COMMITTEE ON MATERNITY AND CHILD HYGIENE

This committee emphasizes the importance of promoting in every state, as part of the official public health work of national, state and local public health authorities, work for the protection of maternal and child life.

The committee is of the opinion that additional action is urgently needed to secure complete birth registration throughout the country.

A complete program of work for the protection of maternal and child life should ensure adequate ante-natal, obstetric and post-natal advice and assistance for every lying-in woman. To this end:

(1) The instruction of medical students in maternity work should be extended and improved.

(2) Where midwives cannot be eliminated from practice, they should be strictly regulated and supervised, and subjected to examination as to competency.

(3) There is great need in most areas for additional institutional accommodation for lying-in women, the methods of provision to be determined by local circumstances.

(4) Health centers, where not already established, should be provided, having specially in view the institution of

(a) Antenatal consultations.

(b) Infant consultations and clinics.

(5) An adequate staff of public health nurses should be provided to secure regular home visitation of mothers and infants, to cover the ante-natal, infantile and pre-school periods.

(6) There should be active educational work for the promotion of personal hygiene with special reference to the hygiene of infancy and childhood.

The Committee favors a carefully devised system of Federal aid extension for promoting public health work, of which measures for the protection of maternal and child life should be an important part.

ARTHUR NEWSHOLME,
S. J. CRUMBINE,
J. W. SCHERESCHEWSKY.

IX. REPORT OF COMMITTEE ON PROGRAM FOR SCHOOL CHILDREN: CORRIGIBLE DEFECTS

A physical record card should be made out for each pupil upon his matriculation in school. This should follow him throughout his school life and should contain his complete physical history.

Systematic medical examination should be given to all school children, especially absentees, inviting neighborhood physicians to assist.

Parents or guardians should be confidentially notified of physical condition, with suggestion that child be sent to family physician or dentist.

In cases which have failed to have defects corrected intensive and individual follow-up work should be done by nurse, the health officer assisting in difficult cases.

Clinics should be established in health center or hospital, where there is one, for treatment of corrigible defects in indigent cases and cases referred by physicians. Such a clinic should be established with the coöperation of the County Medical Society, and, when possible, should be aided by the local Red Cross or other charity organizations. Clinics for conditions requiring services of a specialist should be held from time to time when necessary, such specialists to be provided by the State Board of Health or State Medical Association.

Where contagious diseases exist, and parents refuse correction or treatment, reference to juvenile court should be considered.

The Health Department should keep constant supervision over schools for detection and prevention of spread of communicable diseases. It should require a safe water supply, individual drinking cups and towels, sanitary privies of an approved type, proper ventilation, lighting and heating of school rooms.

Where organization of parent-teachers' associations or local health and welfare

leagues make them practicable, nutrition clinics, hot lunches, health chores, and other methods for training in health habits should be introduced.

The Health Department should coöperate with the County Board of Education and individual teachers for the purpose of providing an adequate course in physical education to the end that each child shall develop a health consciousness that will make him realize the value of individual good health and a health consciousness that will make him contribute to community health.

A. McCORMACK,
L. A. RISER,
P. G. POPE.

X. REPORT OF COMMITTEE ON VENEREAL DISEASES

Your Committee recognizes the importance of the question under consideration and cannot better express its convictions than by quoting a paragraph from a recent message of a Southern governor: "These (venereal) diseases are striking at the very foundation of our social system, and their control is the imperative call of the hour."

We know that venereal diseases are perhaps more thoroughly distributed throughout the country than any other communicable disease and that those suffering from these diseases are rarely properly treated, therefore, we believe the state, county and municipal authorities should acknowledge their obligations and coöperate in every way with the state and federal authorities and with other recognized agencies in the eradication of these diseases, and we recommend the following:

It is the responsibility of the State to provide:

(1) The necessary legislation.

(2) Ample funds for—

(a) Laboratory investigation and diagnosis.

(b) The treatment of the indigent and those confined in state institutions.

(c) Campaigns of education in the rural districts as well as in incorporated units.

(d) General supervision and expert assistance for municipal and county authorities.

It is the responsibility of the county and municipality:

(1) To coöperate with state and federal authorities.

(2) To enforce state and federal laws and regulations.

(3) To adopt, promulgate and enforce such additional legislation as may be deemed necessary.

(4) To provide institutional care for the delinquents who are venereally infected.

All states represented in this conference have laws, or regulations having the force and effect of laws, requiring venereal diseases to be reported. They have laws, also, for the compulsory examination and detention of persons reasonably suspected of being venereal disease carriers.

The task of curing venereal diseases is to be performed by the physician, but he must have the moral support of the laymen if these diseases are to be eliminated. When the public wants the work well done it will support and demand that all measures necessary for the control, cure and thorough elimination of venereal diseases be carried out.

The accomplishment of this task means education, re-education, enforcement of laws and expenditure of large sums of money under judicial direction of the health departments.

OSCAR DOWLING,
W. M. BRUNET.

XI. REPORT OF COMMITTEE ON EDUCATION AND PUBLICITY

In formulating policies and methods of education and publicity your Committee suggests that the following points should be considered:

1. Educational methods which seek to change the habits of a people are not likely to secure lasting results in a short time and therefore should be planned to operate over a period of many years.

2. The education of the following groups is essential:

(a) Practicing physicians—lectures and demonstrations to physicians only.

(b) Medical students—proper courses in medical departments.

(c) Student nurses—special public health work.

(d) School teachers—vacation courses.

(e) Normal school and college students—proper courses in curricula.

(f) School children—adequate courses in primary and secondary schools.

3. Before beginning work the following steps should be taken:

(a) A study of the disease incidence.

(b) A psychological study of the people.

(c) Formation of an educational program which will meet the problems disclosed by these surveys.

4. Experiments should be made to determine the value of the different methods of education. Consideration should be given to the possibility of adapting to public health education those methods of commercial advertising which have proved valuable.

5. In the evaluation of any method a discount should be made for the general improvement in the health of a community which would have occurred if no work had been undertaken.

6. There should be organized a central educational agency for the state which will coöperate with the county units. The service rendered the county will depend upon the amount appropriated by each.

7. The director of the central agency should be well qualified to plan and carry out both health programs and educational work.

8. The determination by the central agency of the health appropriations which could be used with advantage for educational work.

9. The education and re-education of health officers (at the expense of the state or county budgets) by attendance at conference, institutional courses and successful demonstrations.

F. W. DERSHIMER,
M. F. HAYGOOD,
J. L. HYDRICK.

XII. REPORT OF COMMITTEE ON PERSONAL HYGIENE

Personal hygiene may be understood as the application of the principles of physiology and pathology to the preservation of the normal health of the individual, and the formulation as far as possible of rules of right living in regard to such matters as cleanliness; physical exercise; the care of the eyes, of the teeth, and of the skin; the proper conditioning of the air and illumination in living rooms; and the avoidance of excesses in muscular and mental activity.

So far as sound knowledge in these matters can be taught to the public so far will the level of the general health be raised and the incidence of disease and invalidism be reduced.

Instruction in such matters should not be left to unofficial agencies or to private initiative since such efforts are sporadic and moreover frequently exhibit a tendency toward an unfortunate kind of propagandism. Systematic instruction in personal hygiene should constitute a feature of the general campaign of education in public health work and should be regarded as one of the essential duties of a county health officer.

The way in which such instruction may be given must vary with conditions, but it is suggested that there should be a maintained effort to establish courses of a simple character in the schools, to provide for home instruction and inspection through the public health nurse, and to disseminate general information by means of occasional lectures, exhibits, etc. It is also suggested that in view of the general lack of reliable information on such topics among the medical profession, an effort should be made to provide adequate courses of instruction in the medical schools.

W. H. HOWELL,
R. T. DAVIS.

XIII. REPORT OF COMMITTEE ON MEASUREMENT OF RESULTS IN PUBLIC HEALTH WORK

The only reliable basis for evaluating the results of public health work is that furnished by an accurate and complete system of vital statistics, including statistics of birth, deaths and morbidity. These statistics must cover a sufficiently long period of years and be supplemented by similar statistics for comparable units of population in other parts of the country.

The health officer should be in possession of all available information concerning the composition, character, habits and environment of his population. General information of this character may be obtained from the decennial census reports, but other available sources of information such as state and school censuses and local directories should be located and utilized. For many purposes these must be supplemented by more detailed data which can be secured

only by special sanitary surveys. These surveys may often be limited to representative groups of the population. Without this basic population data the statistics of morbidity and mortality are often without significance.

Accurate and complete reports of births and deaths are a minimum requirement and the individual detailed records of births and deaths should be fully and conveniently accessible to the county health officer.

Morbidity records should include not merely the bare reports of cases, but careful, detailed and uniform epidemiological data. These can be obtained only by personal investigation of the cases reported.

These facts afford a basis for measurement of public health work in a community, the reliability of the measurement being proportionate to the original accuracy, detail and extent of the data.

W. H. FROST.
K. E. MILLER.

XIV. REPORT OF COMMITTEE ON METHOD OF HANDLING FUNDS

Procedure in certain states: The coöperative health campaigns in Texas and some other states derive their funds from three sources as follows:

½ from the county	$ 5,000.00
¼ from the state	2,500.00
¼ from the International Health Board	2,500.00
Total	$10,000.00

All expenditures are made under the provisions of a definite budget, the items of the budget being so arranged that the above ratios are maintained in the expenditures.

The $5,000.00 derived from the county remains in the county treasury and is expended under the laws and regulations which govern the expenditure of county funds for any purpose. Triplicate vouchers are used for each expenditure of the funds provided by the county, one voucher being sent to the state health officer, the remaining two being retained by the county auditor and county health officer respectively.

The fund derived from the state and from the International Health Board in equal proportion is deposited in the state treasury. This fund is expended under the laws and regulations which govern the expenditure of state funds. Triplicate vouchers are also used in this case, one being sent to the state auditor, one to the state health officer and the third being retained by the county health officer.

At the end of the fiscal year unexpended balances of the money appropriated by the county are in the county treasury and must be reappropriated to apply on a new budget before they can be used in county health work.

Any unexpended balance remaining at the end of the year, of the fund derived from the state and the International Health Board is refunded to the state and International Health Board respectively in equal proportion.

It would seem that the triplicate voucher system would provide satisfactorily also for the expenditure of funds from any source, in which case one voucher would go to the source of the funds and one each of the two remaining vouchers be retained by the state and county health officers respectively. All vouchers must be approved by both the state and county health officers.

This system agrees in principle with that in use in the West Indies, with which section I am familiar and for which I am responsible. It has proven satisfactory in operation there and I am not in a position to recommend any change which would effect improvement.

Variations in the method outlined above are necessary to meet the different conditions encountered in the various states.

H. H. HOWARD.

NOTE.

In certain instances the United States Public Health service, the American Red Cross, the National Tuberculosis Association, the International Health Board, and other agencies coöperate with the states and counties in supporting county health budgets. The bases of coöperation vary widely. There is no uniformity with reference to the number of coöperating agencies or to the amount of their contributions. The funds furnished by the various agencies range from $100 to $2,500 per year.

JOHN A. FERRELL.

XV. REPORT OF COMMITTEE ON INCREASING THE SUPPLY OF COMPETENT COUNTY HEALTH OFFICERS

The Committee begs to submit the following report:

No time should be lost in endeavoring to secure adequate pecuniary compensation for county health officers and their staffs.

It is idle to expect that competent men and women, in sufficient numbers, will seek

to qualify themselves for such positions unless the financial rewards are more nearly commensurate with the educational and administrative qualifications which are demanded than is now generally the case.

The position of county health officer should be removed from the field of politics in order to secure such tenure of office and certainty of employment as will make the career of the public health officer comparable in this respect to any other professional career.

To attain these ends—better compensation and security of tenure—efforts should be made, particularly by significant demonstrations, to educate not only legislative and executive authorities, but also the general public, including the medical profession, to an appreciation of the benefits which a good county health organization can confer upon the community in the promotion of health, the prevention of disease and improved living and working conditions.

The most important contribution which voluntary organizations can make to the health movement is to aid by coöperation with the health authorities in this educational and demonstrative work in order to create a public sentiment demanding and supporting proper standards of official health organization and demonstration.

In order to secure a supply of competent health officers, now wofully lacking, to meet an ever-increasing demand, every effort should be made to bring to the attention of present and prospective members of the medical profession, especially hospital interns and other recent graduates, and above all medical students, the opportunities and attractions of a career in public health.

To this end, as well as for other reasons, it is urged that a department of hygiene or preventive medicine be established in every medical school where it can be properly supported, or failing this, a lectureship, not so much with the idea of adding a new burden to an already overweighed curriculum, as to ensure to all students at least some presentation of the scope and subject matter of sanitary science and public health work, to furnish more thorough elective courses in these subjects to those desiring them, and most important of all to serve as a leaven to introduce throughout medical teaching, particularly in the clinics, the idea of prevention as not less important than diagnosis and treatment.

In view of the long duration and considerable cost of the preliminary and professional education now required for entrance to the medical profession an urgent, immediate need would be partially met by the establishment by public spirited philanthropists of stipends, scholarships and fellowships to enable selected promising medical graduates to pursue for a year or more specialized training to fit them for public health work. The extension of such financial aid for further study and practical training to selected young health officers would serve an equally useful purpose.

There is great need of increased and improved educational opportunities for the special training of those desiring to devote themselves to public health work.

To meet the various needs it is desirable that there should be:

(1) A few schools of hygiene and public health of a high order, connected with universities. These should have their own faculties and departments, where thorough instruction and opportunities for research should be provided.

(2) Provision in many universities, medical schools, and engineering schools, of special courses designed to meet the needs of those preparing for public health work.

(3) To meet local needs short practical courses conducted by state, and in some instances by municipal or other, departments of health, with the coöperation, where practicable, of medical school and universities.

To universities and medical schools which receive their support from the state, the health authorities may well make representations urging the establishment of courses in public health.

A most useful purpose would be served, especially for the practical training of county health officers, by the establishment of county health units so organized and conducted as to permit the reception of a certain number of workers to serve a kind of apprenticeship in the duties of a county health officer. Such demonstration centers in cities and counties would afford for the prospective health officer opportunities similar to those of a hospital internship for

a medical practitioner, and they are equally important.

Finally, your Committee urges that the health of the people is a matter of national concern, and it is difficult to see what argument can be advanced in support of the extension of Federal aid in the fields of education, of agriculture, and of stock raising, which does not apply with at least equal force to Federal aid to the states in the preservation of health, the control of disease, and the saving of human lives. It is obvious that there are various ways in which the valuable aid already given by the Federal government through the Public Health Service in stimulating public health instruction and developing rural sanitation could be further extended in promoting objects covered by this report.

HUGH S. CUMMING,
WILLIAM H. WELCH,
J. W. SCHERESCHEWSKY.

PUBLIC HEALTH NOTES

Abstracts by D. GREENE, M. D., M. P. HORWOOD, Ph.D., JAMES A. TOBEY and HOMER N. CALVER.

International Conference on Child Welfare.—Such a conference is to be held in Brussels July 18-21, 1921, under the auspices of the Belgian Government, according to information received by the Children's Bureau of the U. S. Department of Labor.

American participation in the Conference is much desired by the Belgian Committee on Organization.

The object of the conference is the discussion of a series of questions dealing with the physical and moral welfare of children, and the rearing of infants. The discussion will proceed under four general heads, (1) Juvenile Delinquents and Juvenile Courts, (2) Abnormal Children, (3) Social Hygiene of Childhood, and (4) War Orphans. Foreign and Belgian experts will prepare reports on child welfare work in their own countries with special reference to the questions on the list. These reports will be printed and distributed in advance to all who join the conference.

It is hoped also to discuss at the conference the question of creating an international organization for child welfare. Steps were taken toward the formation of such an organization following the first International Conference of Child Welfare, in 1913, held also in Brussels, but the war prevented the carrying out of the plan.

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Etiology of Acute Inflammation of Nose, Pharynx and Tonsils.—An exceedingly careful and scientific study of the etiology of inflammations of the upper respiratory tract has been made by Mudd, Grant and Goldman. A number of factors or causes are held to be responsible for these infections. (1) The filterable virus of Kruse and Foster induces apparently a clinical entity, a type of acute coryza. According to experiments of its discoverers, this is of relatively high virulence and may cause infection practically independently of the action of exciting factors. (2) Various bacteria, including the pneumococcus, streptococci, *B. rhinitis,* Friedlander's bacillus, *B. influenza,* and possibly others seem to be capable of inducing infection of variable extent, duration and symptomatology. (3) Protein sensitization, the basis of vasomotor rhinitis and of true bronchial asthma, the underlying cause also of a relatively infrequent subgroup of acute recurrent "colds." (4) Various systemic diseases, drugs, mechanical and chemical irritants, chronic nasal affections and reflex neuroses. One factor by which resistance to bacterial infection may be lowered is excessive chilling. The authors' experiments have shown that chilling of the body surface causes reflex vasoconstriction and ischemia in the mucous membranes of the nasal cavity, postnasal space and palate, oropharynx, nasopharynx and palatine tonsils. It seems not improbable that the ischemia may be the means of lowering local resistance. In other instances another mechanism is doubtless responsible for colds, that is, crowding in overheated places followed by emergence into a cold atmosphere. This view regarding ischemia as the means by which local resistance is lowered is in direct opposition to a theory widely current that congestion of the upper respiratory mucous membranes is responsible for the

local lowering of resistance.—S. Mudd, S. B. Grant and A. Goldman, *Jour. of Lab. and Clin. Med.*, Jan. Feb., and Mar., 1921.—(*D. G.*)

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Nursing in Spain, the Balkans and Poland.—Four hundred Russian nurses have been found among the refugees in Constantinople from the Crimea and are being organized into nursing units for service among the thousands of refugees. The nurses are being sent to the various refugee colonies and paid for their services. The first group was sent to the Balkan camps at Cattaro and Ragusa, where the immediate need for nurses was imperative. A small group is being held at Constantinople for emergency work.

To meet the need for nurses in Spain courses of instruction have been inaugurated there under the Spanish Red Cross. In addition to the courses offered in the capital, others have been organized at Toledo and Segovia. Civil and military authorities are evincing much interest in the movement to provide more nurses for hospitals which are understaffed.

Seven hundred Polish women have been awarded certificates after successfully passing examinations in home hygiene and nursing. The examinations were conducted at the various centers established throughout the country by the American Red Cross. In three months, 1,300 women have attended these courses and have taken a keen interest in the work. Health lectures are considered one of the most effective measures in the campaign against epidemic diseases which have swept Poland.—(*J. A. T.*)

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The World's Lepers.—The recent announcements in reference to the cure of leprosy with refined chaulmoogra oil have led to the compilation of interesting statistics. It is estimated that there are 3,000,000 lepers in the world today. Of these 2,000,000 are in China, 200,000 in India, and 20,000 in Japan. The United States has an important leper problem on her hands in Hawaii and the Philippines.—*Medical Record*, April 23, 1921. *(J. A. T.)*

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Malnutrition.—The notion that the children of the poor are necessarily the worst fed is combated, the authors asserting the greatest amount of malnutrition is to be found among families of the middle class of native birth. The foreigners as well as the well-to-do show fewer evidences of under-feeding.—Alan Brown and G. Albert Davis, *Canadian Public Health Journal*, April, 1921. *(M. B. D.)*

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Statistics of Syphilis and Third Revision of the International List of Causes of Death.—The third Conference for the Revision of the International list of Causes of Death held in Paris during October, 1920, decided that for the ensuing decade reports of deaths caused by complications or later stages of localized syphilis should be classified under titles for diseases of the various organs in which the syphilitic lesion is manifest. If American registration offices decide to adhere strictly to the requirements of the revised list, it will be necessary to classify under "diseases of the brain" every report of cerebral syphilis; under "cirrhosis of the liver" every report of syphilitic cirrhosis; and under "diseases of the respiratory system" fatal cases of syphilitic infection of the trachea, bronchi, or lungs.

For many years, all syphilis whether localized or not has been classified as syphilis. Under the new practice, it will not be possible to ascertain the total number of deaths reported as due to this disease unless registrars show separately for each of these scattered titles in the International List the number of syphilis deaths included. This scattering of syphilis entries over many titles of the International List will involve much labor for the registrar and for the person consulting the reports for material comparable with the statistics of total syphilis mortality in past years.

The decision of the International Conference on this point was made over the earnest protest of the American delegation, who had the support of the delegates of several other countries. If the Manual of the International List, based upon this third revision, is to be used by American registrars strictly in accordance with the practice prescribed therein, the total mortality from syphilis can be determined only if suitable sub-groups are arranged for the several titles receiving these new entries. It is much to be hoped that health officers and registrars will keep this requirement in mind and make possible a complete count of all the deaths due to syphilis that are reported to them.—*Statistical Bulletin XI—2*, Feb., 1921.

The Belgian Method of House Ventilation.—Professor Spehl has just published an important work, in connection with the campaign against tuberculosis, in which he emphasises the necessity of good ventilation in all dwelling places. It would seem to be an established fact that displacement of air in a vertical direction must be regarded as a defective arrangement. He urges that the Belgian system of natural, horizontal aeration—so-called differential aeration—should be generally adopted. This Belgian system was recommended before the war by M. Knapen and has already been made compulsory by the hygienic regulations of Paris. The Knapen method of ventilation provides for openings of varying size in the walls of the several sides of the building, whence the term "differential aeration." These openings thus located at various points avoid harmful currents of air, for two reasons: in the first place, the openings do not penetrate the walls horizontally, but obliquely; that is, beginning on the exterior wall they incline upward as they approach the interior wall. The result is that the force of the air is broken, so that it does not fall on one in such "brutal" fashion. The air is tempered by striking the walls of the ventilating conduit before it enters the dwelling. Furthermore, the openings that admit the air from outside are not of the same size as the interior openings, as already stated. That is the main point. The currents of air that enter the rooms, instead of being sucked in through conduits of the same size throughout, are tempered by the fact that the exterior and the interior openings are of different dimensions and are located at different levels. Consequently, in place of a draught that is feared, a slight but constant mixing of the air is produced, by which means a regeneration of the whole atmosphere is brought about, as the fresh currents pass through from the north to the south or from the east to the west. Spehl claims that this Belgian system of differential horizontal ventilation is, at present, the best method of ventilating all classes of apartments, as it replaces automatically the foul dead air. Then, again, it has the great advantage that it does not bring quantities of dust into the apartments, as does the opening of windows and most ventilators. This may be regarded as one of the outstanding features of the invention.—*Medical Officer*, Jan. 29, 1921, 47. (*D. G.*)

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Anthrax From Shaving Brushes.—The British Ministry of Health has called attention to the recent occurrence of cases of anthrax. Infection has once more been traced to shaving brushes in spite of the steps taken to prevent the distribution of Japanese brushes imported before the prohibition order took effect. It is recommended that these brushes be returned to the wholesale dealer. For the further protection of the public the Ministry has indicated a method of disinfection of shaving brushes. The brush should be: (a) thoroughly washed with soap and warm water containing a little washing soda and then allowed to stand for half an hour in warm water containing a little soda; (b) placed in a warm solution of formaldehyde (1 part of 40% formalin and 16 parts of water—a 2½% solution of formaldehyde) for half an hour; (c) allowed to dry. It is, however, pointed out that complete sterilization of brushes is impracticable; the method mentioned above frees the exposed part of the hair from infection, but does not affect spores embedded in the handle of the brush. The following figures have been supplied by the Medical Inspector of Factories with regard to the results of various forms of treatment in 800 cases of cutaneous anthrax (excluding the erysipelatous form) in Great Britain:

Treatment	Cases	Deaths	Mortality percent
Serum only	200	8	4.0
Excision only	397	44	11.1
Excision and serum	174	25	14.4
No special treatment	29	14	48.3
Total	800	91	11.4

It is also stated that in general the best treatment for a case of anthrax is physiological rest of the part affected, combined with intravenous injection of anti-anthrax serum; and that there is always difficulty in estimating the efficacy of different methods of treatment of a malady such as anthrax, which is capable of undergoing spontaneous cure.—*Lancet*, Feb. 5, 1921, 289. (*D. G.*)

STATE HEALTH NOTES—LEGISLATION

National. *Congressional Procedure.*—From report of National Health Council indicating action up to May 9, 1921.

The creation of a new Department, A Federal Department of Public Welfare, to be brought about by the reorganization of numerous existing governmental functions, is specifically requested by the President in his message to Congress. His policy regarding the proposed Department will be advanced in Congress under selected leadership. Brigadier General Charles E. Sawyer, the President's physician, has been specially authorized by the President to formulate detailed plans on the subject. These plans were presented, in part, to the Senate Committee on Education and Labor at a hearing held on April 21st. General Sawyer told the Committee that the plans, drawn up after study and investigation, embody the outline which, broadly speaking, creates the following divisions to be under the Secretary of Public Welfare and four assistant secretaries:

Education.—To embrace all duties pertaining to the education of the maimed and crippled; coöperation with the states in vocational training, physical education, etc., and all educational work now conducted in the various departments of the Government.

Public Health.—All duties given by statute to the Public Health Service, including research, quarantine, sanitation, hospitalization and special health activities now in many government departments.

Social Service.—All duties of this character now performed by numerous departments, including social hygiene, special work for women and children, employee's compensation, employment services, etc.

Veteran Service Administration.—Duty of considering all matters relating to compensation, insurance, allotments, personnel and equipment, vocational training, etc.—pertaining to the rehabilitation of ex-service men.

The above proposed functions of the new Department, outlined by General Sawyer, apparently met with the approval of all members of the Committee on Education who were present. Senator Kenyon, Chairman of the Committee, is to confer further with Dr. Sawyer for the purpose of drafting a bill which will set out the President's plans. It was urged that the Bureau of Efficiency prepare figures to show what saving of money will be accomplished by this new department, presumably an important element in accomplishing the passage of the bill in Senate and House.

The National Health Council is working in close coöperation with Dr. Sawyer on the health aspects of this plan.

War Risk Insurance Bureau and Public Health Service.—The first actual consolidation of governmental bureaus under the new administration has been made by Secretary of the Treasury Mellon. This was done by an order directing the Bureau of War Risk Insurance to take over from the Public Health Service the greater portion of the work of treating and caring for disabled veterans of the World War. Each of these bureaus is in the Treasury Department. The Bureau is to take over work, offices and personnel of the Service connected with the medical treatment of disabled war veterans, with the exception of the operation of hospitals and dispensaries. The Bureau will take over the work of finding suitable hospital beds and the contracts with private institutions. It will establish an adequate force of medical inspectors to insure proper treatment of patients, wherever they may be placed. The Bureau is to send patients to P. H. Service Hospitals, National Soldiers' homes or hospitals operated by the Army or Navy, and to private institutions.

BILLS RELATING TO REORGANIZATION OF THE FEDERAL GOVERNMENT

S. 408. Establishment of Department of Social Welfare. Introduced by Mr. Kenyon April 12, 1921. Referred to the Committee on Education and Labor. The bill provides for the addition of a new executive department to the government known as the Department of Social Welfare with a cabinet officer and an assistant secretary. It transfers from the Department of Treasury the Public Health Service and the Hygienic Laboratory; from the Department of Interior the Bureau of Education; from the Department of Labor the Children's Bureau, the Bureau of Industrial Housing and Transportation, and the U. S. Employment Service; and from the Department of Agriculture the Office of Home Economics of

the States Relations Service. The U. S. Employees' Compensation Commission, which is now an independent body, is also taken over by the proposed department.

H. R. 7. Establishment of Department of Education. Introduced by Mr. Towner, April 11, 1921. Referred to Committee on Education. This is the Smith-Towner Bill, providing for the establishment of a Department of Education. The bill has not yet been introduced in the Senate at this session of Congress. The proposed new department will undertake research in illiteracy, immigrant education, public school education, including health education, recreation and sanitation; preparation and supply of competent teachers for public schools, higher education and in such other fields as may require attention. About $85,000,000 are appropriated, $20,000,000 being for physical education and instruction in principles of health and sanitation, which is to be used for aiding the states, but each state aided must match the appropriation of the Government from its own funds.

The bill authorizes the transfer of the Bureau of Education and such other offices, bureaus, divisions, boards, or branches of the government as Congress may determine.

S. 526. Establishment of Department of Health. Introduced by Mr. Owen, April 12, 1921. Referred to Committee on Appropriations. This measure has been introduced in Congress at regular sessions for the last ten years. It contemplates the establishment of a new executive department known as the Department of Health. It provides for a head of the department known as the Secretary of Health and all the health activities of the government shall be transferred to his jurisdiction. An assistant Secretary of Health, who shall be a skilled sanitarian, is also designated.

H. R. 3. Establishment of a Veterans' Bureau. Introduced by Mr. Sweet, April 11, 1921. Referred to Committee on Interstate and Foreign Commerce. The measure provides for the establishment of a Veterans' Bureau in the Treasury Department to supplant the Bureau of War Risk Insurance, the Vocational Education Bureau, and the hospitalization work of former disabled service men now being conducted by the U. S. Public Health Service.

A director at a salary of $10,000 per year is designated and he is given a medical staff and other necessary employes to conduct the work and duties pertaining to the care of former service men.

S. 1607. H. R. 5837. Department of Public Welfare. Introduced in the Senate by Mr. Kenyon and in the House by Mr. Fess. Referred to Committee on Education and Labor in the Senate and the Committee on Education in the House.

There is proposed a new cabinet department with a secretary at $12,000 a year and four assistant secretaries at $5,000 a year each, who shall each be in charge of one of the following divisions: 1. Education; 2. Public Health; 3. Social Service; 4. Veteran Service.

The following existing offices are abolished and their powers and duties transferred to the new department:—

Director, Bureau of War Risk Insurance.

Surgeon General, Public Health Service.

Commissioner of Education.

Chief, Assistant Chief, and Private Secretary to the Chief, Children's Bureau.

Federal Board for Vocational Education.

Board of Managers, National Home for Disabled Volunteer Soldiers.

The following bureaus are transferred to the new department:—

Children's Bureau (Labor).

Bureau of War Risk Insurance (Treasury).

Public Health Service (Treasury).

Office of Education (Interior).

Bureau of Pensions (Interior).

Freedmen's Hospital.

National Home for Disabled Volunteer Soldiers.

U. S. Employee's Compensation Commission (number of commissioners reduced to one).

Columbia Institution for the Deaf (Interior) functions.

Howard University (Interior) functions.

St. Elizabeth's Hospital (Interior) functions.

The Secretary of Public Welfare may allocate the functions of the various bureaus within the proposed department.

S. Joint Res. 30. Additional Member on the Smoot-Reavis Committee. Introduced by Mr. Smoot. Senate and House have passed a joint resolution authorizing the President to appoint a representative to act for the executive on the Joint Committee

on Reorganization. The President has appointed Mr. Walter Brown of Toledo, Ohio. This is the Smoot-Reavis Committee and the additional member is selected at the request of the President. It is not definitely known to what extent this reorganization committee will act. No hearings have as yet been held.

BILLS RELATING TO EXTENSION OF HEALTH FUNCTIONS OF THE GOVERNMENT

S. 1039. Protection of Maternity and Infancy (Sheppard-Towner Amendment). Introduced by Senator Moses of New Hampshire, April 28, 1921. Referred to the Committee on Education and Labor. This is an amendment to the so-called Sheppard-Towner bill, which is now before Congress, having been re-introduced at the present session by Senator Sheppard. It is a complete substitute for the Sheppard-Towner measure, providing for coöperation between the Federal Government and the county governments, instead of between the Federal Government and the state governments. The Moses plan, as outlined in this amendment, extends to any county government in the country the option of providing $5,000 for the equipping of a county hospital, the Federal Government to furnish a similar amount. A sum of $5,000 shall be provided annually both by the Federal and county governments for the maintenance of such hospitals. Care of maternity cases and treatment of children shall be given preference in these hospitals. Courses in elementary nursing training of one year's duration would be given in these hospitals. The proposed coöperation with the state governments as outlined in the Sheppard-Towner bill is eliminated altogether.

The bill appropriates $10,000 for the administration of the Act, under the direction of the Surgeon General of the Public Health Service.

The President is given the power to transfer to the new department in addition to the above any other educational, health or social welfare activity of any branch of the government. Any controversy as to relative functions of the new department and any other are also to be decided by the President.

Mr. Courtenay Dinwiddie, who has followed the proceedings closely gives these notes of the hearing of May 5, 1921, before the Senate Committee on Education and Labor.

"Opponents of the Bill heard by the Committee were in charge of Miss Kilbreth of the National League Opposed to Woman Suffrage. They included representatives of the Medical Liberty Group, a spokesman of the physicians of Fitchburg, Mass., and one or two individuals. The arguments were closely similar to those at previous hearings. The advocates were Dr. S. Josephine Baker, Dr. R. A. Bolt, Dr. Ellen C. Potter, and Dr. Florence L. McKay.

"Questions by the Committee were frequent and indicated a general friendly attitude, except that Senator Phipps of Colorado suspected there might be danger of propaganda for birth control if the bill passed."

H. R. 22. The Promotion of Physical Education. Introduced by Mr. Fess, April 11, 1921. Referred to the Committee on Education. This measure provides for the promotion of physical education in the United States, through coöperation with the states, in the preparation and payment of supervisors and teachers in physical education, including health supervisors and school nurses. The sum of $10,000,000 is appropriated for the fiscal year ending June 30, 1922; and for each subsequent year an amount sufficient to allot $1 per child of school age to each state accepting the provisions of the act. Each state must designate an authority who shall organize the physical education work to meet the needs of all the children of the state from six to 18 years of age. An additional sum of $300,000 is appropriated for payment of salaries in the District of Columbia; and $200,000 is allowed to the U. S. Public Health Service for carrying out certain coöperative, research and demonstration phases of the work. The Bureau of Education of the Department of Interior is to establish a Division of Physical Education to administer the act. The same bill was introduced in the Senate by Senator Capper of Kansas. The number of the Senate bill is Senate 416.

H. R. 2287. The Extension of Vocational Rehabilitation, to ex-service men. Introduced by Mr. Rogers, April 11, 1921. Referred to Committee on Education. This bill makes the terms of the existing Federal law on the subject of Vocational Rehabilita-

tion of Disabled Persons, discharged from military and naval forces, more liberal, extending the benefits of vocational training where the earning capacity of the former service men have been impaired to the extent of at least 10 percent.

H. R. 19. Extension of Vocational Training to Widows of ex-service men. Introduced by Mr. Newton, April 11, 1921. Referred to the Committee on Education.

This is an amendment to the Vocational Training Act which extends the vocational training to the widow and child of a disabled service man, who has died as a result of injuries or wounds incurred in the war. It fixes the limit to be paid to any such person $100 per month for single persons without dependents and $120 per month for persons with dependents. No child shall be paid more than $50 per month.

H. R. 21. The Advancement of Vocational Education in Civil Population. Introduced by Mr. Fess, April 11, 1921. Referred to the Committee on Education. The measure provides a federal appropriation to coöperate with the various states in the promotion of vocational education in agriculture and trades and industries, and for the preparation of teachers of vocational subjects. The sum of $500,000 is appropriated for the fiscal year ending June 30, 1922, and for each subsequent year for nine years an amount equal to the amount appropriated for the preceding year, plus $250,000. For the fiscal year ending June 30, 1931, $3,000,000 is appropriated and annually thereafter. Each state in order to secure the benefits of this act must organize a State Board of Vocational Education and prepare plans for carrying out the education, these plans to be submitted to the Federal Board of Vocational Training.

S. 525. Establishment of a Sanitary Corps for the Public Health Service. Introduced by Mr. Owen, April 12, 1921. This bill proposes a Reserve Corps for duty in the Public Health Service in time of national emergency. It authorizes the President to appoint and commission such officers, who shall be sanitarians.

Bills Relating to Other Medical, Hospital and Public Health Matters

H. R. 116. Issuance of Doctor's Licenses to Practice in All States of the Union. Introduced by Mr. Mason, April 11, 1921. Referred to the Committee on Interstate and Foreign Commerce. The bill gives the Secretary of the Interior the authority to issue to doctors of medicine licenses to practice medicine in the states of the Union without discrimination between states. Any physician, according to this bill, who has become a practicing doctor in any state of the Union and has a license duly issued by the licensing power of that state may apply to the Secretary of Interior and secure for the sum of $10 a license giving him the right to practice in every state.

S. 206. Prohibition of Exportation of Opium. Introduced by Senator Jones of Washington. This measure is an amendment to the existing law prohibiting the importation of opium into the United States, and it provides against the exportation of any opium, cocaine or salt derivative, to any country except under certain restrictions. It passed the House at the last session. A similar bill has also been introduced in the House by Mr. Miller of Washington. It is H. R. 2193.

H. R. 65. Prohibits Transportation of Poisons Without Label. Introduced by Mr. French, April 11, 1921. Referred to the Committee on Interstate and Foreign Commerce. The bill is an amendment to the Pure Food and Drug Act which provides that the shipment of any poison direct to a consumer from one state to another without being placed in a container bearing the word "poison" and without containing a label giving at least one suitable antidote shall be a violation of the act, punishable by the penalties already fixed.

H. R. 4109. Destruction of animals affected with rabies. Introduced by Mr. Baker, April 18, 1921. Referred to the Committee on Appropriations. The measure appropriates the sum of $200,000 to the Secretary of Agriculture to be used for the destruction of coyotes, California lions, cougars, wildcats and all other wild animals which suffer with rabies or other dangerous animal diseases.

H. R. 4104. Free Distribution of Antirabic Virus. Introduced by Mr. Baker, April 18, 1921. Referred to the Committee on Appropriations. The bill gives the sum of $25,000 to the Bureau of Public Health Service for the distribution free of cost of

antirabic virus to be used in the treatment of persons exposed to rabies.

S. 802. Incorporation of American Society for the Control of Cancer. Introduced by Mr. Wadsworth, April 13, 1921. Referred to the Committee on the Judiciary. This bill provides for the incorporation of the American Society for the Control of Cancer, which is pledged not to engage in any business for gain.

H. R. 5033. Prescriptions of liquor for medicinal purposes. Introduced by Mr. Volstead, April 25, 1921. Referred to the Committee on the Judiciary. This is a measure supplementing the National Prohibition Act. It eliminates the sale of beer on a physician's prescription. By a recent decision of former Attorney General Palmer, the distribution of a bottle of beer per day to patients by doctors holding permits from the Prohibition Commissioner was legalized. This proposed act annuls the Attorney General's ruling. Prescribing wine is still permitted. Another feature of the bill is a provision giving the Prohibition Commissioner the right to cancel, suspend or revoke licenses of physicians who fail to observe the law in prescribing spirituous or vinous liquors. In this case notice is served upon the offender and he is given thirty days to show reason why the license should not be cancelled. Among other measures of a similar nature to be passed on by the Committee is the bill which transfers actual enforcement of prohibition from the Treasury Department to the Department of Justice.

H. R. 5346. Bureau of Citizenship (health instructions for aliens). Introduced by Mr. Johnson of Washington, April 27, 1921. Referred to Committee on Immigration and Naturalization. The name of the Bureau of Naturalization of the Department of Labor is changed by this measure to the Bureau of Citizenship with the creation of a head official entitled "Director of Citizenship." Complete control, registration and education of the alien population of the United States, including all questions connected with their naturalization, are invested in this Bureau of Citizenship. The Director is authorized to promote in the states, among other things, instruction in physical education, health and sanitation, for foreign-born and native illiterates.

S. J. 46. Investigates health of former soldiers. Introduced by Senator Robinson of Arkansas, May 2, 1921. Referred to the Committee on Military Affairs. This resolution provides for the establishment of a commission composed of three members of the Senate and three members of the House, whose duty it shall be to investigate conditions respecting the health, hospitalization, compensation and employment of former service men. The commission at the end of three months shall report to Congress the results of its investigations with recommendation for remedial legislation.

H. R. 5764. Extends authority for expending money on war risk hospitals. Introduced by Mr. Landley of Kentucky, May 4, 1921. Referred to the Committee on Public Buildings and Grounds. The purpose of this proposed amendment to the act passed at the last session of Congress authorizing the expenditure of $18,600,000, is to give the Secretary of the Treasury additional discretion in the use of this money in equipping or remodeling hospitals belonging to the Army and Navy and also national homes for disabled volunteer soldiers now being used for the care of former disabled war veterans.

H. R. 5617. To establish a bureau for study of criminal, pauper and defective classes. Introduced by Mr. Walsh, May 2, 1921. Referred to Committee on the Judiciary. This bill proposed in the Department of the Interior a bureau for the study of abnormal classes, especially such as may be found in institutions for criminal, pauper and defective groups.

Eighteen other bills were introduced into Congress by May 9, 1921, which are indirectly connected with health administration. These relate to hospitals and hospital construction, compensation and bonuses, reimbursements, vocational rehabilitation, prevention of fires in industrial plants, hoarding of foods, and one, H. R. 4136, requires the words "Goat meat," to be stamped on the carcasses of goats.

Interdepartmental Social Hygiene Board.—The last Congress, in its session closing March 4, 1921, made no appropriation for continuing this Board. Since the adjournment of Congress the Surgeons General of the Army, Navy and Public Health Service have met and agreed that the Board should ask the present Congress for an appropriation of $925,000. This money, if

appropriated, is to be devoted to five general purposes: 1. $500.000 for allotment to state boards of health in accordance with the provisions of the Chamberlain-Kahn act. 2. $250,000 for assisting the states in protecting the military and naval forces of the United States against venereal diseases. 3. $50,000 for medical research with reference to treatment and control of venereal diseases. 4. $25,000 for administrative expenses. 5. $100,000 for developing better anti-venereal disease education. Items 2, 4 and 5 are to be under the control of the Board with reference to administration and disbursements, and 1 and 3 by the Public Health Service.

The organization of the Board under the new administration has resulted in Major General Merritt W. Ireland being elected chairman, and in the three Surgeons General actively serving on the Board as representatives of the three Secretaries.

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National. National Health Council Report of Congressional procedure brought down to May 10, 1921.

H. R. 6263. Expenditures for Hospitalization. Introduced by Mr. Langley of Kentucky May 16, 1921. Favorably reported by the Committee on Public Buildings and Grounds.

This measure amends the act passed by the last session of Congress appropriating $18,600,000 for the construction of new hospitals for the government and the building of additional extensions to present institutions owned by the government. In the original act it was specified that of this sum $6,100,000 was to be used in remodeling and extending existing institutions. This bill, in the form of an amendment, eliminates such restriction and gives the Secretary of Treasury authority to expend the entire amount either for new hospitals or for the construction of additions to old hospitals. It was deemed of such importance that the Committee on Public Buildings and Grounds met the day following the introduction of the measure by Mr. Langley and, acting promptly, reported it favorably to the House, asking for immediate passage.

S. 1839. New measure for creation of Department of Public Welfare. Introduced by Senator McCormick of Illinois May 18, 1921. Referred to the Committee on Education and Labor.

This is the first of a series of bills to be introduced into Congress for the reorganization of the Federal government by Senator McCormick of Illinois, who has made an exhaustive study of this subject. The measure is quite similar to the Fess-Kenyon bill for a Public Welfare Department except that it provides for the transfer of additional bureaus and commissions from other departments. In the McCormick measure there is a cabinet member at $12,000 a year and three assistant secretaries at $7,500 a year, who have charge of the various functions and operations of the public health and welfare activities. The bureaus, offices and branches of service to be included in the Department of Welfare as prescribed in this bill with the Departments from which transferred are as follows:

(a) From the Department of the Interior—Office of Indian Affairs, United States Indian Service, Bureau of Pensions, Bureau of Education, St. Elizabeth's Hospital, Howard University, and Freedmen's Hospital. The Board of Indian Commissioners is abolished.

(b) From the Department of the Treasury—Bureau of War Risk Insurance, Office of the Surgeon General, Public Health Service, the collection of vital statistics would be under the direction of the Public Health Service. The United States Employes Compensation, the Federal Board of Vocational Education, the United States Interdepartmental Social Hygiene Board, the National Home for Disabled Volunteer Soldiers, the Columbia Institution for the Deaf are all abolished as separate institutions and their functions are transferred to the new Department of Public Welfare. The Secretary is authorized to reorganize branches of services within the proposed Department.

H. R. 6300. Deficiency Bill. Reported without amendment on May 18, 1921.

The Deficiency Bill for the fiscal year ending June 30, 1921, contains the following items of interest to public health workers:

Federal Board for Vocational Education	$15,000,000
Medical and Hospital Services, Bureau of War Risk Insurance	8,710,272
Prevention of Epidemics, Public Health Service	309,000
Expenses for eradication of tuberculosis in animals, Bureau of Animal Industry	405,000

H. R. 6215. Amendment to Pure Food and Drug Act. Introduced by Mr. Voight of Wis-

consin, May 13, 1921. Referred to the Committee on Agriculture.

This is an amendment to the Pure Food and Drug Act, which is designed to put an end to the manufacture, sale, or transportation of adulterated milk. It applies particularly to any kind of milk or cream, whether evaporated or condensed, which has been blended with fats or oils other than milk fats.

S. 1607. Fess-Kenyon bill for a Department of Public Welfare. The joint hearings have officially closed. They were held on May 11, 12, 13, 18 and 20. Thirty-seven witnesses were heard.

Brigadier General C. E. Sawyer explained the bill and stated that the plan had the endorsement of the President. Surgeon General Cumming explained the scope of the office of the Surgeon General and requested that it be retained. He seemed to acquiesce in the bill excepting for the clause abolishing the office of Surgeon General. Dr. W. H. Welch of Johns Hopkins, favored the bill. He stated that while departments of education and health are desirable, they may be combined. Dr. Edward Martin, Health Commissioner of Pennsylvania, seemed to agree with Dr. Welch. An entire session was taken up by representatives of educational interests, who in general were not opposed to a Department of Public Welfare, but did not wish education submerged in it. Representatives of the N. E. A., Columbia University, American Council of Education, National Congress of Mothers and Parent Teachers, International Sunday School Association and other organizations were heard supporting this view. Other speakers advocated various changes and a number of individuals, chiropractors, representatives of citizens protective associations and American medical leagues opposed it.

Delaware.—The recent Legislature increased the appropriation for diphtheria antitoxin from $500 to $5,000, so that diphtheria antitoxin, the Schick test and toxin antitoxin are now free to all applicants. It also made an appropriation to pay the salary and expenses of a supervising nurse for instructing midwives.

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District of Columbia.—Information furnished by the National Health Council. The legal management and appropriations of the District are vested in Congress.

S. 810. To regulate practice of Medicine in District of Columbia. Introduced by Mr. Cummins April 13, 1921. Referred to the Committee on the District of Columbia.

The bill is an amendment to the act already in existence regulating the practice of medicine and surgery in the District. It provides that persons who apply for licenses must give satisfactory evidence that they have studied medicine or surgery in a medical college authorized by law to confer such a degree, or under a preceptor authorized to practice medicine and surgery for not less than three years prior to the issue of the diploma. The former act did not contain these provisions.

H. R. 4118. Prevention of Venereal Disease in District of Columbia. Introduced by Mr. Baker April 18, 1921. Referred to the Committee on the District. The bill compels all physicians, dentists, nurses, midwives and other persons who professionally attend to file a written report with the Health Board, of all cases of syphilis, gonorrhea, or chancroid that come under their notice. It also provides a penalty for any patient suffering with venereal disease who fails to carry out the instructions of his physician to prevent the spread of the disease. Every person, under penalty, is also compelled under the law to report to the Health authorities within three days after becoming aware of the existence of the disease.

S. 749. Regulation of practice of osteopathy in District of Columbia. Introduced by Mr. Capper April 13, 1921. Referred to the Committee of the District. This proposed act creates a Board of Osteopathy Examiners of the District of Columbia composed of five members who shall have the power to issue licenses and regulate the practice of osteopathy in the District of Columbia. The same bill number H. R. 2918 has been introduced in the House by Mr. Smith.

S. 624. Regulations for Chiropractic in the District of Columbia. Introduced by Mr. Fletcher April 13, 1921. It provides for the selection of a board of Chiropractic Examiners and general regulations on the subject within the District.

S. 758. Experiments upon Living Dogs. Introduced by Mr. Myers April 15, 1921. Referred to the Committee on Judiciary. This is the anti-vivisectionist bill which has for years been before Congress. The proposed act makes it a misdemeanor for any person to experiment or operate upon any living dog in the District of Columbia or the Territories of

the United States. The penalty is a fine of from $100 to $500.

Another bill, H. R. 2920, provides for the establishment and maintenance of a school and home for feeble-minded persons.

Legislation tending to improve the milk supply of the District has been submitted to the Commissioners by the Health Officer with recommendation for its enactment by Congress. A venereal disease bill, designing to assist the Health Officer and the Commissioners in the control of venereal diseases has been prepared by the Health Officer and forwarded to the Commissioners with a recommendation that it be promptly forwarded to Congress for enactment.

In the Act making appropriations to provide for the expenses of the Government, fiscal year 1922, there is a provision "To aid persons of moderate means who are suffering from tuberculosis to obtain adequate sanitarium and hospital care, $3,000." This is a new item and details of the method of dispensing this fund have not as yet been fully formulated.

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Illinois.—Senate Bill No. 294 provides for the employment of full time medical health officers, paid by the State, for every county in Illinois. It has been endorsed by the Council of the State Medical Society and by local medical societies in the state.

A new ruling of the State Department of Public Health requires all employes to be successfully vaccinated against smallpox. The Director of the Department set the good example by being the first to comply with the rule.

On April 19th the Board of Supervisors of Champaign County unanimously voted to increase an appropriation of $85,000 for the construction of a county tuberculosis sanatorium to $109,000. This increase makes possible the erection of buildings that represent the latest and most scientific thought in sanatorium construction and commodious enough for future needs.

It will be located just north of Urbana.

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Massachusetts.—On May 3, 1921, the Governor signed Senate bill 392, which provides for the appointment of school nurses in the public schools. This is an amendment to the General Laws, whereby nurses as well as physicians are to be appointed by the local school committee, which is required to assign a physician and a nurse to each of the schools within its jurisdiction. It is further necessary to provide both physicians and nurses with proper facilities for their work. Nurses are not obligatory in towns of less than $750,000 valuation.

House bill 1661, to provide for physical training in the elementary and secondary schools of the Commonwealth was signed by the Governor on the same day. How different it was on emergence from the bill originally presented may be judged by the fact that the Committee on Ways and Means recommended that all after the enacting clause be stricken out and substituted what was in effect merely the addition of "indoor and outdoor games and athletic exercises" to the regular courses in spelling, reading, writing, geography, arithmetic, drawing, history of the United States, duties of citizenship, good behavior, physiology and hygiene, etc., already prescribed.

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Minnesota.—Legislative economy has resulted in a smaller appropriation for the work of the State Board of Health for the coming two years than for the past fiscal period. The treatment of Pasteur cases will be discontinued July 1, 1921 and such patients will be referred to local boards, while after-care in poliomyelitis will be undertaken by the State Hospital for Crippled and Deformed Children. This work has been under the care of the State Board since 1916. The program in venereal diseases must be modified to meet the loss of aid from the U. S. Government, and a new plan has been determined on which will decentralize the free clinics and place the former cost of this work on the University Medical School and local boards.

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Missouri.—The State Legislature has appropriated $120,600 for the State Board of Health for the biennial period of 1921-1922, with one of the items, $20,000 for coöperative work in rural sanitation.

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Ohio.—The General Assembly has passed the Jones bill, which amends previous legislation so that any county with a population of 50,000 or more may erect its own tuberculosis hospital. The bill is effective about July 1, and a number of counties are planning to establish hospitals. The previous stipulation was that two or more counties could join in

such an enterprise, but the more populous ones can not act without this limitation.

A bill intended to repeal the Kumler bill of two years ago, permitting nurses to administer anesthetics, has passed the Senate and it is expected that the House will concur. The repeal has been favored by the Ohio State Medical Association and other societies.

The Talley bill giving the State Health Department authority to require pure water supplies in municipalities, once tabled, has been revived and coupled with a bill by Senator Chatfield, and referred to the Senate Committee on Public Health. The Talley-Chatfield bill is upheld as a preventive of typhoid fever outbreaks such as that at Salem, O., last year. It will authorize the State Department of Health to compel the corrections of insanitary conditions in public water supplies.

The Wenner occupational disease bill has been signed by the Governor. The purpose of this is to compensate workmen disabled through such diseases. It has developed, however, that the appropriation is not adequate. Bills authorizing the Board of State Charities to arrange for treatment of crippled children from the Juvenile Court and to authorize school officials to make special appropriations for the education of blind children and deaf children, have been passed.

Various bills now pending provide for improvements in institutions, largely for the benefit of tuberculous patients. The constitutionality of the Hughes-Griswold Health Code has been attacked in the courts. The suit is to compel a county auditor to pay to a village a sum of money collected in the county for the village under authority of the law.

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West Virginia.—The Legislature has passed the Model Vital Statistics bill.

Be getting ready now for the great Fiftieth Meeting of the A. P. H. A.—New York City, November 14-18, 1921.

STATE HEALTH NOTES—GENERAL

National.—The success of the Institute on Venereal Disease Control and Social Hygiene recently conducted by the Public Health Service suggests that public health officers, practicing physicians, nurses, social workers and clinicians are eager for more training and that they will come long distances to get that training (650 attended the Venereal disease Institute) when the best kind of instruction is offered to them.

The Service, therefore, proposes to conduct a general public health institute to take place during the fall of 1921; and to offer 25 to 30 courses including the following: Diagnosis and treatment of tuberculosis, Nutrition in health and disease, Sanitary engineering, Clinic nursing and social work, Clinic management, Courses in syphilis and gonorrhea, Mental hygiene, Industrial hygiene, Child hygiene, Vital statistics, Laboratory diagnosis, Health centers, and Various courses in psychology and sociology.

The Institute faculty will be composed of 75 to 100 leading authorities, including: William H. Welch, William H. Park, John A. Fordyce, Valeria H. Parker, John H. Stokes, Michael M. Davis, Jr., William A. White, Anna Garlin Spencer, Irving Fisher, C. V. Chapin and M. J. Rosenau.

Twelve hundred boys and girls employed in the various industries of the city of Newark, N. J., and attending the continuation schools several hours a week will be examined by a corps of doctors and nurses under the direction of Dr. H. H. Mitchell, health specialist of the Child Labor National Committee. Their physical condition will be compared with what it was when they received their working papers. A correlation will be made between the occupations in which the children engage and their health records while at work.

The object of the study, according to Dr. Mitchell, is to obtain reliable scientific data on which to base conclusions regarding the need of some form of health protection and service for boys and girls who have left the regular schools and gone to work, as well as to throw additional light on the question of whether the minimum age for entering industrial employment should be raised from 14, which is the age established by law in most of the states, to 16, which was recommended by the Children's Bureau Conference on Child Welfare Standards in 1919.

Of the ten largest cities in the United States, New York holds third best place in infant mortality rates for the past year. Statistics collected by the Babies' Welfare Federation show that out of every thousand babies born here during 1920, 85 died. New York's 1920 roll call of new babies totalled 132,856. During the year 11,340 under a year old died. This is an increase of almost 5% over the rate of the previous year, an increase which the Babies Welfare Federation holds the winter epidemics of pneumonia and influenza accountable for. Of New York's five boroughs Bronx has the lowest death rate, 77.6 per thousand, and Richmond the highest, 94.2 per thousand. The statistics for the other boroughs are: Manhattan, 91.7; Brooklyn, 80.5; Queens, 82.1. The poor showing of Richmond is thought to be due to the fact that it is largely rural and lacks traveling facilities for training mothers in the care of children.

Los Angeles holds the lowest mortality rate in the country having only 70.8 deaths per thousand. The second best showing was made by St. Louis, with 76.5 to its credit.

The records of the seven large cities having a higher death rate than New York are: Chicago, 85.48; Cleveland, 86; Philadelphia, 88.57; Boston, 100.8; Detroit, 104.2; Baltimore, 104.2; Pittsburgh, 110.8.

A conference was called at Washington, D. C., on April 14 by the National Information Bureau to consider the coördination of social work. More than 100 organizations were represented, which were classified into nine groups. One of these nine integral groups was that of health organizations.

The health group recommended to the National Health Council, already organized, that in so far as possible, it act as a clearing house of information to all agencies dealing with health. It was recommended further to the National Health Council, that it promote within the states, coördination conferences of national and state agencies in coöperation with state health authorities.

The general committee of the coördination conference was authorized to undertake, through the agency of the National Information Bureau, a study of the work of federal social agencies in local communities to determine the facts as to the interrelations of the work of national agencies in those communities.

In prescribing for a sick stream an intensive study of stream pollution with special regard to he establishment of a general plan by wh.ch any polluted stream in the United States m'ght be purified at a minimum expense has recently been begun by the United States Public Health Service.

As is well known a polluted stream tends to purify itself, but its power in this direction depends on the amount and character of the original pollution, on the volume and speed of the current, and on the extent to which new pollution is added along its course.

The Service has selected for study the Chicago Main Drainage Canal and the Illinois River (which empties into the Mississippi), chiefly because all the primary pollution of this stream originates in Chicago and is accurately ascertainable, both as to amount and character. Analyses taken along the course of the canal and river will determine the degree and nature of the changes that take place in it. Where new pollution is added, its amount and character must be ascertained; and its effect on the old pollution learned. This last is important, for it is quite possible that sundry industrial waste might neutralize each other or might destroy certain types of organic pollution.

Similar work was done on the Ohio River from 1914 to 1917; and the present study is to check the results obtained there.

The final object is to establish fundamental quantitive relationships between bacteriological and chemical pollution of a stream on the one hand and basic principles, such as population, industrial wastes, stream flow, and prevailing temperature, on the other.

From this diagnosis remedial measures may be formulated.

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Arkansas.—In accordance with the law county health officers to the number of 79 have been appointed for terms of two years, their work having begun on May 17, 1921.

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Delaware.—The Governor of Delaware has re-appointed Dr. G. W. K. Forrest, of Wilmington, Dr. L. S. Conwell, of Camden, Dr. W. F. Haines, of Seaford, as members of the State Board of Health for four years. At the meeting of the Board on April 7th, Dr. William P. Orr, of Lewes, was re-elected President and Dr. L. S. Conwell, Secretary.

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District of Columbia.—Dr. John L. Norris Assistant Health Officer of the Department of

Health, has resigned to accept a more remunerative position as Surgeon in the U. S. Public Health Service. This makes the second vacancy in the Department which it may be hard to fill. For more than a year the position of Chief of the Bureau of Preventable Diseases has been without incumbent and there seems to be a difficulty in securing a competent physician for the place, the salary of which is $2,750 a year. The situation is quoted by the local press as an example of the inadequate scale of wages paid in many city departments.

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Georgia.—Dr. B. V. Elmore of Rome and Dr. J. Allen Johnson of Bainbridge, Ga., have been appointed Health Commissioners. The Division of County Health Work of the State Board of Health is urging the county officers to become active in programs of health education, the result of which is that many have provided themselves with motion picture projectors and many films are being shown in rural districts.

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Illinois.—In spite of the somewhat inclement weather conditions, Health Promotion Week (April 17-23) was a greater success this year than ever before. The program outlined by the State Department of Public Health for the occasion was generally observed throughout the State. Chicago led the way with an official proclamation by her Mayor and a vigorous campaign headed by Health Commissioner, Dr. John Dill Robertson. East St. Louis, Peoria, Decatur and other leading cities followed practically the same course. Especially noteworthy was the widespread and active interest displayed by the smaller municipalities and rural communities.

The leading features of the week's program were general cleanups, better baby conferences and birth registration. The latter is looked upon as of particular significance since it adds public approval to the plans of the State Department of Public Health to institute a relentless drive against non-registration of births until Illinois has been admitted to the United States Registration Area for Births.

Preliminary to Health Promotion Week, the State Department of Public Health outlined a program for the activities of each day of the week, printed and distributed 25,000 copies of a special bulletin on the subject and sent out 10,000 letters in reference thereto. The response to this publicity campaign taxed the Department to the limit in its effort to meet requests from local communities for advice, special literature, exhibit material and assistance in the way of speakers. Schedules were so arranged that the motion picture films, stereopticon slides and posters maintained in the loan service made showings each day. Twenty speeches and special demonstrations were made by the limited personnel of the Department. More than 80,000 pieces of literature and more than 400 letters were sent out in reply to special requests.

The successful observance of Health Promotion Week is due in no small measure to the coöperation and assistance that was freely given by the daily and weekly newspapers. Editors all over the State gave liberally of their space and endorsed the measure with strong and favorable comments of their own.

Team work and smooth coöperation are the results of an innovation that brings together on each Thursday morning the Chiefs of the ten major divisions of the State Department of Public Health for a conference with the Director. These meetings give to the division heads a clear insight into the problems and activities of the other divisions and substitute active knowledge of purpose and policy for vague and hazy notions.

The conference on the last Thursday of each month is given over to a review of current literature on public health that proves at once instructive and interesting.

Considerable alarm and publicity was recently occasioned by the escape of a leper from quarantine in East Moline. Vigorous and earnest efforts to locate the leper were immediately instituted. While the search thus far has proved futile and although the case was positively demonstrated as one of leprosy, Dr. I. D. Rawlings, Director of the State Department of Public Health, takes the position that a single case of leprosy is much less a menace to the public health and is a source of decidedly less danger than the constant exposure to such common diseases as smallpox, diphtheria, scarlet fever, and pneumonia. Smallpox and diphtheria showed a marked increase during the past winter and both diseases are positively preventable. The other common communicable diseases respond readily to control measures and should elicit much greater public concern than a case of

leprosy. Leprosy is only mildly contagious in the United States.

Smallpox draws no age limit. This has been clearly demonstrated by several cases among unvaccinated persons of advanced years that have recently been reported. Two women of Loogootee, Ill., one 92 years old and the other 60, who had not been vaccinated since infancy were victims. A man of 80 at Geff and one of 72 at Xinia who had never been vaccinated were also attacked by this disease. Reports show that smallpox has been generally more prevalent in Illinois during the past winter than heretofore and a corresponding increase of activities among anti-vaccinationists is indicated.

In response to a request from the Southern Illinois Medical Association, the State Natural History Survey has undertaken a number of surveys in representative communities to determine the location and prevalence of malaria-carrying mosquitoes in the southern sections of the state. Up to the present time such surveys have been completed at Murphysboro and Carbondale in Jackson County and at Herring in Williamson County. According to reports an attempt has been made to determine the number of mosquitoes relative to the number of malarial cases. The next survey will be carried out during the coming summer at Thebes in Alexander County. Reports ready for distribution may be had from the State Natural History Survey, Urbana, Illinois.

A death on March 18th from trichinosis was recently reported to the State Department of Public Health. The victim was a white woman, age 28, who lived at Macomb, Illinois. The Department calls attention to the fact that trichinosis is a communicable disease of human beings and of hogs, rats, mice, dogs and other animals. It is caused by an organism which is barely visible to the naked eye and is transmitted to humans through the eating of infected hog flesh. Fever and muscular pain are prominent symptoms of the disease that may often be mistaken for rheumatism or typhoid fever. To prevent trichinosis in man, no hog flesh should be eaten unless thoroughly cooked.

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Kentucky.—In the State of Kentucky the women's clubs have taken an active interest in public health and have entered into relationships of coöperation with the State Board of Health. The Bulletin of the State Board for February, 1921, is a Women's Club number, and presents a set of six club study programs on public health, prepared by the Kentucky Federation of Women's Clubs. These programs have been prepared so that any group of club women may be aided in the presentation of one to half a dozen health meetings. Each study is planned on a basis of three or four fifteen-minute papers, with five to fifteen minutes' discussion of each topic. References are given in the outline, so that the writers of the papers may have access to the most recent literature.

The first programme is one that relates to the baby. It discusses pre-natal care and how it is to be obtained. A second paper in this group outlines minimum standards for the care of women in the most critical and important time of life, and suggests how the standards are to be realized. The third and fourth papers in this symposium consider maternity and infant care and the need for public aid for mothers at time of childbirth. The literature available has much of it been adapted to the conditions that exist in this Commonwealth.

Taking up the period of infancy and till entrance to school, a second programme emphasizes the care of the well baby, the planning of the child's day, its sleep, its day-time rest, its diet and its exercise and other matters. Legal safeguards are considered, and public protection of infants as developed in health centres and similar establishments, while two other papers deal with pure milk and the protection of children from communicable disease.

In its consideration of the school child, the Kentucky manual deals first with that all-important though as yet little-developed matter, the sanitation of the schoolhouse. The need of physical examination is another topic, an understanding of which will go far towards offsetting the propaganda of medical liberty leagues. This is a most important section of the whole discussion, including as it does the consideration of the school equipment for school medical work, the relations of the school nurses and those of the school physician. Incidental to this discussion are school clinics, open-air schools and school luncheons.

In similar manner the programmes of the Kentucky Federation consider the dependent child and the defective, together with a brief discussion of delinquency. Of the value of

such considerations of all-important health topics at a hundred centres in Kentucky in well-advised fashion, there can be no doubt. Supplementary items make the State Board Bulletin of even more interest, including "A Health Message" from Dr. A. T. McCormack, State Health Officer, and a playlet, "The Costly Party," prepared by the pupils of the Louisville Normal School and devoted by them through the Federation to health education. The motive of the playlet is that a little girl has the "flu," a party has been scheduled, and, despite the warning of the doctor, it is given and the disease spreads among the invited children. Its book gives a running fire of health lessons.

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Maine.—The Maine State Board of Health is making a campaign in favor of breast-fed babies. This is the baby's right and efforts are made to have every mother assure to her child the start in life that breast feeding will give. Nothing is so good for the baby as mother's milk and nearly every mother is capable of nursing her child if she wishes so to do.

In its efforts to better the statistical work of the state the Maine authorities are noting to the people that they are the foundation stones to all public health work. The individual should recognize the value of good statistics to himself personally, and interest himself in the improvement of them. Birth records are indispensable and the laws with reference to the recording of births, deaths, marriages and divorces are important ones and should be strictly enforced.

What the public health nurse means to the community is set forth in a little statement by Dr. L. D. Bristol, State Health Commissioner, who notes that the nurse is the strong right arm of the health forces of the state. She is a graduate nurse, registered by the state, and with special training to fit her to engage in the preventive, remedial, and educational health work of any community. Wherever babies are born, and mothers can not have the services of a private nurse; where there is lack of care among the children through ignorance or neglect; where home conditions are bad; where there are schools in which children are suffering from uncorrected physical defects; where there are men, women, and children suffering from tuberculosis without instruction as to proper care of themselves and their families; where there is sickness or distress among poor; in these and many other places the public health nurse finds a field for her work.

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Massachusetts.—Details have been completed for a demonstration in public health organization to be carried out on Cape Cod, and on May 16, 1921, the project was launched under the direction of Dr. Russell B. Sprague, a former district health officer together with a nurse furnished by the local chapter of the Red Cross. Ten towns have entered into coöperation with the state authorities and the U. S. Public Health Service, the whole organization bearing the name, Cape Cod Health Bureau. The towns interested in the demonstration are: Barnstable, Bourne, Brewster, Chatham, Eastham, Orleans, Sandwich, Truro, Wellfleet and Yarmouth.

The corps of workers will consist of a full time health officer, a sanitary inspector, a public health nurse and an office assistant.

Reports will be made and plans will be subject to approval by the local health boards and the State Department of Public Health, as well as the Public Health Service.

The functions of this staff will be similar to those of a full-time health officer and his assistants in a municipality and they will range from the physical examination of school children to the abatement of nuisances, including the control of communicable diseases, inspection of milk and water supplies, the promotion of child welfare and clinics in coöperation with established agencies, the inception of maternity and infant hygiene in towns where it is not carried on.

The health forces of the city of Boston have had this season a series of interesting meetings in different sections of the city. Altogether there were public gatherings in nine centers in different sections of the city and to very varied groups of citizens. In the North End the audience was largely Italian, at the West End, it was 95% Jewish, in other sections the companies were mixed, but everywhere the people manifested the same kind of interest. This interest was heightened in that special groups had speakers in their own tongue, E. A. Campana, a sanitary inspector of the Boston Health Department, addressing the Italians and Dr. Wilinsky using the Yiddish vernacular.

The meetings had for their slogan, "Your good health and mine," in each program there

was singing and in each one one or more motion pictures relative to health. One of the most interesting features was a period during which the members of the company assembled were encouraged to ask questions. Some of these were of value, for example, whether chewing gum after meals is helpful in cleaning the teeth. The speaker said that despite some contrary opinions it was pretty well established that such a process was of use and aided in the prevention of dental troubles. Another question was as to how the pig, wallowing in filth, could be other than a means of transmitting germs to man, to which the answer dwelt on the immunity of certain animals to bacteria and showed that pigs are not dangerous in that way. Other features of these question periods developed complaints against health services and once or twice sought to raise the question of tenant and landlord.

The meetings proved highly successful and it is proposed to continue them. Through the coöperation of Health Commissioner W. C. Woodward and Mr. James T. Mulroy, Director of the Department for the Extended Use of Public Schools, it is proposed to establish a permanent health center in each school center building at which the district health officers may have headquarters and meet the people of their districts from time to time.

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Michigan.—This state has already started its "laboratory on wheels," on its rounds for the purpose of inspecting sanitary conditions at Michigan health resorts. During the season of 1920 this laboratory visited 131 summer resorts and hotels, reporting that nearly half the water supplies were unsafe, fully half of them had no adequate method of disposing of garbage, while almost as large a percentage of the milk supplies would not pass the bacteriological tests for "reasonably clean" milk. "People in cities are learning the value of sanitation," states Dr. R. M. Olin, the State Health Commissioner, "and in choosing a place to spend their vacations will come to demand the same protections that are afforded in everyday life." Another expert in the Board, Maj. Edward D. Rich, notes that when the crowded conditions at resorts are considered and the fact that a large portion of the patrons are not at physical par, the need for the closest health supervision is evident.

Rural typhoid is rife in Michigan and on May 30, according to local reports was present in 47 out of the 83 counties. There are a number of counties free from the disease which are entirely surrounded by others in which there are cases of the disease. Wayne County with a population of 180,000 has more cases than Detroit with 500,000 or more. On account of the prevalence of the disease the health authorities are urging prophylaxis, using the pertinent argument that the A. E. F. was practically free from typhoid.

Within the past few weeks the Supervisors of Jackson County, Mich., have appropriated $5,000 to coöperate with the Division of Animal Industry, in eradicating bovine tuberculosis; two other counties, Wayne and Hillside have appropriated $3,500 each, while five other counties have voted smaller sums for the same purpose. This is evidence of a fairly systematic effort to rid the state of the tuberculous cow.

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Minnesota.—The State Board of Health at a meeting of May 3, 1921, made the following changes in staff: Secretary and Executive Officer, Dr. A. J. Chesley, from Director, Division of Preventable Diseases; Director, Division of Preventable Diseases, Dr. Orianna McDaniel from Assistant Director; Dr. Charles H. Halliday, Senior Epidemiologist, Division of Preventable Diseases.

On account of the failure of the last Congress to continue Federal aid to the states in the control of venereal diseases, this work in Minnesota has been curtailed. The Legislature could not see its way to cover the deficiency, although the Senate Committee did recommend an increase from the $30,000 of last year to $40,000. The State Board of Health frankly outlining the situation calls upon the medical profession for the continuance of the coöperation that has been afforded in the past.

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Nebraska.—A new Division of Child Hygiene and Public Health Nursing has been created in the State Bureau of Health with Miss Margaret McGreevy, R. N., for Director.

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New York.—Smallpox has been declared to be epidemic in North Tonawanda.

The Healthmobile began its third season on April 25 under the direction of the Division of Public Health Education. By means of this specially equipped motor truck it is possible to carry the health campaign into sections of

the state remote from traction or steam lines. The plan adopted last year of combining forces with the Division of Child Hygiene is being carried out this year. Each afternoon a child health consultation clinic is held under the direction of a physician from the Child Hygiene Division, assisted by a state supervising nurse and the Sanitary Supervisor of the district. The health officer is always invited to be present. This is followed in the evening by a meeting open to the public, health films being shown. When possible a speaker is provided.

At the meeting of the State Medical Society at Brooklyn May 3 to 5, one session of the Section on Public Health, Hygiene and Sanitation was devoted especially to the problems of health officers and medical school inspectors. The program of a second session was prepared by the New York State Association of Public Health Laboratories while the two remaining sessions were held jointly with the sections on Medicine and Pediatrics respectively.

The fifth annual meeting of the New York State Association of Public Health Laboratories was held at Brooklyn, May 4. The scientific program included the following papers: A comparative study of diagnoses made in various laboratories in New York State by Miss Ruth Gilbert, Albany; Pneumococcus infection and immunity by Dr. O. T. Avery, New York; Serological studies in tuberculosis by Messrs. S. A. Petroff and George Ornstein, Trudeau; Coöperation between the central State Laboratory and the local municipal and county laboratories by Dr. A. B. Wadsworth, Albany.

At the business session the officers elected were: President, Dr. W. B. Stone, Schenectady; Vice-President, Dr. W. C. Noble, New York; Secretary-Treasurer, Miss M. B. Kirkbride, Albany; Members of the Council, Dr. W. S. Thomas, Clifton Springs, and Dr. Ellis Kellert, Albany.

The mid-year meeting of the association will be held in the autumn at the State Laboratory, Albany.

The State Board of Health is calling the attention of the newly married to the importance of registration of the fact. It should be a part of the regular duties of the person who performs the ceremony to transmit the certificate of marriage with the original license to the clerk who issued it, but this sometimes is not done. In New York state it is the custom of the State Department of Health to send a circular to all newly married women and in default of the arrival of this, inquiry should be made of the local registrar whether the marriage was properly recorded.

This is the time of the year for the regular conferences of the district health officers in New York state. On May 10 the Utica group was called to order in Hotel Utica; on May 12 three counties, Monroe, Livingston and Ontario were represented at a meeting in the office of the State Sanitary Supervisor in Rochester; on May 24 local officials came together in Saratoga Springs from the counties of Fulton, Hamilton, Montgomery, Schenectady and Saratoga; and the following day was the date for the Jefferson-Lewis county conference at Watertown. On May 31, three counties, Westchester, Putnam and Dutchess, sent delegates to the meeting at Brewster and June 1 saw another gathering of the kind in Middletown representing Delaware, Sullivan, Ulster, Orange and Rockland counties. At each of these meetings some local dignitary presided, local speakers presented local phases of health problems and the State Board was represented by one or more speakers, Dr. M. Edgar Rose, Director of the Child Welfare Division of the Board being present at all of them. All public health nurses of the counties were invited to attend and take part in the discussion, while at Middletown the nurses had a conference of their own.

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New York City.—The Greenwich House Health Center, with the idea of giving impetus to its baby welfare work, recently demonstrated a "Prize Mother's Contest." The idea is one originating with Mr. and Mrs. Routzahn of the Russell Sage Foundation, some account of an earlier one having been published in the *A. P. H. A. News Letter* for April, Page 3. The mothers attending the Baby Feeding Clinic of Greenwich House were given notice that on April 27 there would be a mother's contest instead of the familiar baby's contest. At the appointed time and place there was a health exhibit. The mothers were greeted at the entrance and given an opportunity to answer the following questions, the answers to which were written down on score cards. The questions were:

1. Age of baby, — years, — months —.
2. Number of hours sleep per 24 hours?
3. Baby sleep alone?

4. Windows in baby's sleeping-room? Open? Shut?

5. Give baby anything to make it sleep? What?

6. Breast fed? Artificially fed? What used?

7. Baby nursing? Weaned? At what age?

8. How often is baby fed?

9. Give baby any other food than milk? What?

10. Ever use a pacifier?

11. How often is baby bathed?

12. What clothing used?

The rating was fixed immediately and before leaving the mothers received their prizes. There were gold, blue, red, green or black seals, representing 100%, 90%, 80%, 70% and failures. When the mother was finished in the clinic she was directed to the prize table and allowed to select one piece or another of aluminum ware, which would be of use in making up food for the baby. The reason for the selection of these articles is because the mothers in the district are largely Italian, and with these people it is difficult to get them to wean the babies when the time comes. Every factor was used to make the contest attractive, the seals were mounted on tags and the tags had health mottoes on the back in typewritten characters.

One of the by-products lies in the cards, which will be used by the nurses in follow-up work in the families.

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North Carolina.—Another forward step in the protection of the public health is announced by the State Board of Health, the newest move being aimed at the eradication of diphtheria. Through Dr. C. A. Shore, Director of the State Laboratory of Hygiene, notice is being sent the physicians of the state that toxin-antitoxin is now ready for distribution at the nominal charge of ten cents for the three doses needed to give immunity.

The authorities explain to the people in notices of various kinds that toxin-antitoxin is different from diphtheria antitoxin. The latter is used for treatment and, in 1,000 unit doses, for immediate protection. The immunity rendered by the toxin-antitoxin mixture is believed to last for years, certainly as long as the immunity produced by typhoid vaccine. There is good reason to believe that diphtheria can be practically stamped out by the widespread use of diphtheria toxin-antitoxin mixture.

North Carolina claims to be the first state in the Union to make the means of immunity from diphtheria available to all citizens virtually without cost.

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Nova Scotia.—The Massachusetts-Halifax Health Commission reports that a special dental service is being organized by the Commission for the summer months. It will be under the advice and general guidance of the Consultant in Dentistry, Dr. Frank Woodbury and Dr. Arabella MacKenzie, a pediodontist at the preschool age dental clinic in Admiralty House Health Centre. Appointment of Dr. J. S. Bagnall, as supervising dentist and Dr. J. H. Lawley, first assistant, has been made.

The School board of Halifax has arranged to have the school nurses make social investigations in the homes of children needing dental work and make engagements for their treatment in the Dental Infirmary. These nurses will give a month of summer holiday to this work. The newly appointed school nurse will begin work at once in order to help speed up this campaign of dental hygiene.

Children having need of operation for the removal of adenoids and tonsils will be given the right of way in the dental hygienic clinic. In the beginning only children under 10 years of age will be treated. Later in the Summer perhaps the age limit may be raised to 12 years.

The same opportunities will be afforded the school children of Dartmouth both in the dental hygiene and the nose and throat clinics. These special clinical services have proved of great interest to members of the Canadian Medical Association meeting here in June.

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Ohio. — The school health pageant, "Health Wins," is meeting with much favor throughout the state. It has been adapted by its author, Mr. J. Clarence Sullivan, to out-of-door use and is booked as an attraction as well as an educational feature at many fairs, at the Mississippi Valley Conference and at meetings of local health leagues. Fully a score of dates of one to three days are already booked and it will be active as an outdoor attraction till the snow flies.

The Ohio Public Health Federation, which was revived early this year in view of certain political movements, includes no less than a

dozen state-wide organizations, which have taken the matter in hand of giving the state a fair deal in matters of importance in health administration. The associations federated are the following: Ohio Federation of Women's Clubs, Ohio State Association of Graduate Nurses, Ohio State Medical Journal, Ohio State Dental Association, Ohio Public Health Association, Ohio Hospital Association, Ohio State Pharmaceutical Association, Homeopathic Medical Society of Ohio, Ohio Veterinary Medical Association, Ohio Osteopathic Society, Ohio Eclectic Medical Association and Funeral Directors and Embalmers Association of Ohio.

The city of Cincinnati, through its Department of Health, is circularizing the people in the interests of protection from diphtheria. The principles of the Schick test are outlined and a blank form of request is attached so that parents may ask for a test for their children, the test to be made in the school building and under the direction of the Department, the General Hospital and the Medical Colleges of the University. As a result of the distribution of information the Health Commissioner, Dr. W. H. Peters, has received requests for the testing of 255 children in one of the schools and 300 requests from the parents of children in another school. In the group first-named there were 68 positive reactors. The directors of two orphan asylums have also requested tests of the children under their care.

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Ontario.—The Province of Ontario has equipped the motor truck of its Child Welfare Clinic with projecting apparatus and health films. The car is fitted up as a clinic with a physician and a nurse for personnel. The object of these demonstrations is to impress the public with the need of appointing a permanent nurse in every community to carry on the good work which the provincial nurses have started. Each nurse is provided with a motor car, to enable her to cover as much ground as possible and get in touch with all classes of people.

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Oregon.—The State Board of Health has resolved itself into a Bureau System, as follows: Bureau of Administration, Dr. C. J. Smith; Bureau of Legislation and Rules and Regulations, Dr. Andrew C. Smith; Bureau of Nursing, Dr. F. M. Brooks; Bureau of Epidemiology, Dr. George Houck; Bureau of Vital Statistics, Dr. J. H. Rosenberg.

The quarterly meeting of the Board was held at Grants Pass, May 10, 1921. Rules and regulations were adopted for the parole of cured venereal cases for one year after leaving institution.

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Texas.—Texas has now a number of different active forces at work for the betterment of the public health. The State Department of Health has under way the development of the Bureau of Child Hygiene, and Public Health Nursing, having called to the position of Director, Mrs. Lydia K. King, a resident of the state for 22 years, a teacher of health in the summer normals of Oklahoma and Texas, a nurse with the A. E. F. and since then till now in coöperation with the Texas State Board.

Together with other states having a large negro population, Texas emphasized Negro Health Week, from April 3 till April 9, during which time about a quarter of a million of these people participated in the celebration. A special feature was emphasized each day, Wednesday being Children's Day; Thursday, Tuberculosis Day; while on Sunday there were health sermons in all the churches.

The Texas Public Health Association is engaged in an anti-fly and anti-mosquito campaign, and against the latter is noting the facts, that a mosquito can fly only a little more than a mile, that breeding places within this distance of the home are unsafe, and that in all events the home should be screened. Fresh air is another of the health subjects that this Association is emphasizing. "Overheating like overeating, is the cause of much ill health to man," is one of the sentiments that this campaign has evolved.

At the present time the Texas Public Health Association is carrying on a campaign for a $300,000 hospital for negroes. There is no bed in Texas for the tuberculous negro outside the penitentiary, and the economic loss through this class is set at $14,000,000 a year.

The city of Dallas has started on a campaign of education among its citizens, and has set forth important health truths and conditions in a special bulletin or progress report.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hayhurst and E. B. Starr.

Industrial Posture and Seating. Special Bulletin No. 104 of the Dept. of Labor comprises 56 pages amply illustrated on this subject. The study was undertaken by the Bureau of Women in Industry with the idea of gathering together experience and designs from those who had given the matter serious consideration. The problem was in reality a question of eliminating, in so far as possible, the fatigue which comes from bad posture, or from continuously working in one position. Lack of imagination is responsible for much bad seating. Custom has decreed the way in which many operations are performed, rather than that the work is fitted to the worker. "A seat that never wears out" is the slogan that sells a certain make of round-top factory stool. The "ad" might better read: "The seat that wears the worker out."

Part I discusses posture in industry with comment upon the relation to fatigue, variation in posture, and what constitutes good and bad posture. Part II discussed seating, including chairs, the material of chair seats, shape and size of seats, adjustment, backs, foot-rests, benches and adaptability to handle supplies with many illustrated examples of standardized seating. A bibliography on the subject is added. The conclusions are: (1) That posture must be varied—continuous sitting or standing are both harmful and the will of the person is the ideal guide; (2) Work conditions should be such that correct posture is possible—there is no one chair that is best for the industrial processes. To provide a good seat is not enough; the important thing is to bring all parts of the work place into the best possible relationship.—Bureau of Women in Industry, *New York State Industrial Commission*, April, 1921.

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Ventilation, Heating and Humidity in Factories.—For a concise statement of Labor Law bearing on the subjects indicated, in the New York Labor Law, Chapter 50, of March 9, 1921, paragraphs 299-300 are exemplary. Size of rooms and air space per person are also succinctly stated thus: "No greater number of persons shall be employed in any room of a factory between six o'clock in the morning and six o'clock in the evening than will allow each person so employed two hundred and fifty cubic feet of air space nor, unless by written permit of the commissioner, than will allow four hundred cubic feet of air space for each person employed between six o'clock in the evening and six o'clock in the morning. Such rooms shall be lighted by electricity whenever persons are employed therein between six o'clock in the evening and six o'clock in the morning.—*New York Industrial Commission*, (became a Law, March 9, 1921).

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A Physiological Basis for the Shorter Working Day for Women.—This article reviews briefly the arguments and evidences in support of the 8-hour day and discusses the condition known as fatigue. "Fatigue, like pain, is one of the great safety valves of the human machine. It is protective. It is a physic defense. Like pain, it warns of and protects against that which is worse than itself. It is a sign that one is going too fast." Numerous examples are given of increased production as the result of shortening the work day. Among those which have not been cited broadcast heretofore are examples taken from the report of the Illinois Industrial Survey Commission, 1918. Here the results in a soap factory which changed from the 10-hour to 8½-hour day, and its standard week from 55 to 48 hours, resulted in an increase of 11.8 per cent per hour and an increase from 42.8 cases to 45.5 per day. A similar finding is given in a corset factory and in buttonhole making, etc. The legal aspects of the problem including the opinion of the U. S. Supreme Court in 1908 are considered.

The sciences of physiology and psychology, the law, the decisions of the courts, the police power of the States, the example of the Congress, the Peace Conference, the joint interests of both employer and employee, the rights of society expressed in

the voice of an enlightened social conscience, all unite in favoring the establishment of the 8-hour day as the maximum which should be required of women in industry. For upon the women depends the vigor of the race, and the vigor of the race must not be exploited for present-day purposes instead of for racial conservation.—George W. Webster, Bulletin No. 14, *Women's Bureau, U. S. Dept. of Labor*, February, 1921.

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Silicosis and Tuberculosis Among Miners.—For the year ending July 31, 1919, the chairman of the Miners' Phthisis Medical Bureau, reports over 32,000 statutory clinical examinations and investigations made. The attack rate of tuberculosis not complicated by silicosis was 255 per 100,000 as compared with 259 for the preceding year. While the prevalence was at the rate of 1,141 per 100,000 as compared with 1,267 and 909 for the two preceding years respectively. Tuberculosis with silicosis was 869 per 100,000, almost the same as the previous year. The unanimous opinion is that a technically satisfactory radiogram should be available for diagnosis. Tuberculosis affecting the silicotic miner is relatively non-communicable to healthy persons. However, the *Bacillus tuberculosis* from such lungs is just as vulnerable to guinea pigs as is the bacillus from an ordinary case of pulmonary tuberculosis.—*British Med. Jour.*, No. 3131, January 1, 1921, p. 26.

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Factors Which Hinder the Extension of Industrial Hygiene.—Some managers feel that the whole subject of industrial hygiene is in an experimental stage and they prefer to conserve their time and money until the advantages are more clearly seen and the most successful line of development found. A fairly common conviction is that it is useless to improve conditions in the plant while conditions in the home remain unimproved:—in a way this hinges on whether employees are getting a "living wage" and the degree of responsibility of the employer for setting the standard of requirements for healthy living. The progressive manager has also to justify to his directors outlay which in the nature of the case will not certainly yield dividends or quickly tangible results. Opposition from the employees themselves is often found, in that they reason whether money so spent might not have been better spent on increased wages. Employees are also apt to misconstrue the motive. Post-war conditions are offered also as an argument that the time is unpropitious either for launching new plans or for gaining any representative view of conditions. The expense of getting real results may be considerable where employees live at long distances, necessitating an expensive visiting nursing service. Again, many employers and managers who genuinely desire "to do the best for the employee" have proceeded without getting expert advice and as a result have fared badly in that they have installed more or less expensive improvements which have given little results. Part-time medical services concerned mostly with accident work is not a substitute for industrial hygiene. "Broadly it may be said that while there is an interest in the subject of industrial hygiene there is a lack of continuous and organized effort to promote it, and that its full importance as a factor in commercial prosperity is not realized." "On the whole we are forced to the conclusion that there is general lack of recognition of the occupational factor in disease."—*Report No. 7, Survey of General Conditions of Industrial Hygiene in Toronto*, Sub-Committee of the Privy Council for Scientific and Industrial Research, Ottawa, 1921, 21 pages.

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Hotel Astor will be the Hotel Headquarters of the Fiftieth Annual Meeting of the A. P. H. A. The date of the Meeting is November 14-18, 1921, and the place, New York City.

PUBLIC HEALTH LABORATORY NOTES

Abstracted by ARTHUR LEDERER, M. D.

Diagnosis of Typhoid and Paratyphoid Infections.—The high titer agglutinating serum can be employed to demonstrate the presence of typhoid and paratyphoid bacilli in feces both for diagnostic purposes in suspected typhoid infections and to determine their presence in the feces from convalescing cases without resorting to cultures. The typhoid bacilli can appear in the urine at the same time that an extensive circulatory bacteriemia exists, before a positive Widal reaction is obtainable. The finding of the bacilli in the urine may prove the only definite means of establishing a definite typhoid diagnosis. A typhoid bacillus cystitis can apparently exist without producing an agglutinin production in the blood. A typhoid or paratyphoid bacteriemia unsuspected in an operative case may prove disastrous to the patient. This paper and a previous one show that the detection and identification of motile bacilli in urine can prove of considerable diagnostic value.—Henry J. Goeckel, *Jour. Lab. Clin. Med.*, Vol. 6, No. 6, (1921).

✣

Ice Water-Bath in Complement Fixation for the Wassermann Reaction.—By this modified technic the tubes are placed in a rectangular galvanized iron pan with stopcock for drainage. Ice water is poured into the pan until it reaches a level higher than that of the fluid in the tubes. The temperature of this water is kept at 8°C. for 15 minutes by the addition of small pieces of ice. (The temperature of a tube placed in the ice water-bath is reduced to 9°C. in five minues or less. After the expiration of 15 minutes, the ice is removed with the result that the temperature of the ice water-bath rises approximately one degree each half hour. At the end of the hour, the ice water is drawn off by opening the stopcock and the pan is refilled with water at 40°C. The tubes are allowed to remain in this for a period of five to ten minutes in order to remove the chill from the tubes before they are placed in the 37.5°C. water-bath. The sensitized cells are then added and the tubes are placed in the 37.5°C. water-bath for one hour at which time the readings are made.—W. W. Duke, *Jour. Lab. Clin. Med.*, Vol. 6, No. 6, (1921).

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Staining of Phagocytes.—To 100 cc. of neutral distilled water there are added 20 cc. of glycerin and alcohol and then 2 cc. of phenol. In this fluid there is dissolved, by shaking for two or three minutes, crystal violet 0.06 gram and pyronin 1.2 gram. The stain is ready for use without filtration, and keeps for a long time if shielded from direct sunlight and the bottle is well stoppered. Smears are made on carefully cleaned glass slides and merely dried in the air. The stain is flooded on for five to ten seconds, and thoroughly washed off with distilled water, but direct drying of the preparation by blotting paper is avoided. The nuclei are stained violet and the cytoplasm takes a delicate lavender tint with the cell limits clearly and sharply defined, so that it is easy to distinguish between intracellular and extracellular bacteria, which are coloured deep purple. The chief advantage claimed for the method is that there is total absence of annoying precipitates which are too often associated with the staining of phagocytes.—*Johns Hopkins Hosp. Bull.* February, 1921; *Brit. Med. Jour.*, April 9, 1921.

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Studies of Measles.—Monkeys (*Macacus rhesus*) are susceptible to inoculation with the virus of measles. The symptomatology of the reaction induced in monkeys by inoculation with material containing the virus of measles is described. The symptoms and course of this reaction closely parallel those of human measles. The microscopic pathology of the lesions of the skin and buccal mucous membrane of monkeys experimentally infected with the virus of measles is also described. These lesions are essentially identical with the corresponding lesions of measles in man.—Francis G. Blake and James D. Trask, Jr., *Jour. Exp. Med.*, 33, 385 (1921).

Metabolic Study of the Urine in Pellagra.—The mineral metabolism seemed to be abnormal especially in the actively pellagrous stage as witnessed by the low P_2O_5 excretion despite the fact that the diet taken at the time was a generous one with abundance of milk. Indications were present of a heightened putrefactive process in the intestines. The presence of casts or albumin or both casts and albumin in the urine gave evidence of more or less kidney change in about 50% of the cases. Marked pellagra can occur with no evidence of kidney change. There was low excretion of total nitrogen and the ordinary urinary ingredients. The urea ratio, in general, was low, and in certain cases with fair total nitrogen the urea ratio was lower than should be expected, a finding which suggests liver insufficiency. There was a heightened ratio for ammonia nitrogen and undetermined nitrogen. The metabolic level during the active stage of the disease was low as further shown by the low excretion of the uric acid and creatinin. The creatinin coefficient was much below normal. The utilization of protein was found to be subnormal, even after several weeks of a remedial diet. With at least a month on the curative diet, the urinary ingredients rose to approximately normal amounts, the urea ratio rose to normal and the ammonia ratio fell to normal. As suggested by Goldberger, Wheeler and Sydenstricker, the disease may be differentiated into at least two types: (1) a type with marked skin symptoms but with little physical degeneration; and (2) a type with slight skin symptoms but with profound systemic involvement. The abnormality in the urinary findings was greater for the systemic type than for the dermal type.—M. X. Sullivan, R. E. Stanton and P. R. Dawson, *Arch. Int. Med.*, 27, 387, (1921).

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Cultivation of the Gonococcus.—The essential factor is reduced oxygen tension. Moisture is also necessary for good growth. A reduction in the oxygen tension of 10% is sufficient to produce optimal growth. The organism will grow luxuriantly, if the oxygen tension is suitable and moisture and uncoagulated protein are present, on media of ordinary reaction range. The technique is very simple. Ordinary broth agar (2%) is melted, and to it is added half as much sterile ascitic fluid. The tubes are sealed with sterile rubber stoppers, slanted, and kept always in the incubator. They are copiously inoculated, care being taken to prevent cooling, and the inoculated tubes held horizontally, with the agar uppermost, are passed three or four times through the Bunsen flame and quickly corked. This is quite sufficient to lower the oxygen pressure to the requisite degree, when the tubes are returned to the lower incubator temperature. Colonies are visible in from 15 to 18 hours, and profuse growth is obtained in 24 hours. On this medium the gonococcus is viable for about seven days.—Swartz, Shohl and Davies, *Bull. Johns Hopkins Hosp.*, Dec., 1920, *Brit. Med. Jour.*, April 2, 1921.

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New Method of Adding Cresol to Antitoxins and Antiserums.—A mixture of equal parts of ether and cresol is presented as a new preservative for antitoxins and serums. This mixture is added in amounts necessary to give the required concentration of cresol. The addition of this mixture causes much less precipitate than does cresol alone. Subsequent precipitation is not necessarily limited by the ether, it is never greater than that in products containing cresol alone. The mixture of ether and cresol is more strongly antiseptic than cresol alone. In therapeutic application, the ether is not a disadvantage. In the case of intravenously injected antitoxin, the indication that the ether may under certain circumstances reduce the incidence of adverse reactions warrants further comparative work. Ether may be added to the toxin-antitoxin mixture without disturbing the balance of the mixture.—Charles Krumwiede and Edwin J. Banzhaf, *Jour. Inf. Dis.*, 28, 367, (1921).

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Vitality and Viability of Hemolytic Streptococci in Water.—Hemolytic streptococci, when placed in water, remain alive for a variable length of time, depending upon their number, upon the temperature, upon the presence of other organisms, and upon virulence. They are capable under special conditions, of retaining their vitality for a long time, but under natural conditions, if placed in water, they will succumb quite rapidly, especially if recently isolated.—George S. Livingston, *Am. Jour. Hyg.*, 1, 239. (1921.)

Effect of Vaccination Against Influenza and Some Other Respiratory Infections.—The prophylactic effect of a widely used vaccine containing Pfeiffer bacilli, streptococci and pneumococci has been studied clinically and statistically. The authors have recorded during a period of about 7 months the respiratory ailments which developed among 6,066 persons, approximately half of whom had received the vaccine. Some of these were attacked by influenza in the 1920 wave, which occurred within two months of the vaccination; in addition, the usual number of pneumonia and common cold cases among those observed afford material for comparisons. Rhinitis and bronchitis developed with frequency about equal in vaccinated and unvaccinated groups. The influenza attacks among the 2,873 vaccinated numbered 118 (4.1%) and among the 3,193 unvaccinated numbered 152 (4.8%); 7 pneumonia complications with 2 deaths occurring among the 118 vaccinated patients and 12 with 2 deaths in the 152 unvaccinated. Both the influenza and pneumonia attack rates are hence somewhat lower among the vaccinated, but the difference is not great. Pneumonia, not associated with influenza, was also less frequent among the vaccinated, only 6 of 19 pneumonia patients having been vaccinated. The small numbers hardly warrant, although they suggest, a favorable conclusion regarding some slight prophylactic value for pneumonia. That any considerable degree of protection against influenza was conferred by the vaccine seems unlikely.—Edwin O. Jordan and W. B. Sharp, *Jour. Inf. Dis.*, 28, 357, (1921).

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Cultivation of a Filtrable Organism from the Nasopharyngeal Washings in Influenza.—A minute, filtrable, gram-negative organism has been isolated in pure culture from the nasopharyngeal washings of early cases of uncomplicated influenza. A typical clinical picture and characteristic pathologic changes have been produced in rabbits by the intratracheal inoculation of these cultures. Both initial cultures and subcultures have proved pathogenic for animals. The same clinical and pathologic manifestations were produced in a series of rabbits by the intratracheal inoculation of a culture kept at incubator temperature for fourteen months. The infectious agent has been carried through several animal passages. The organism has been recovered in pure culture from the lungs of animals suffering from the experimental disease, and has been proved to be again virulent. All control studies have been negative.—Leo Loewe and Frederic D. Zeman, *Jour. A. M. A.*, 76, 986, (1921).

✣

Preservation of Complement.—The author reports the results of his trials with Rhamy's method of preserving complement for Wassermann tests, as described in the *Journal of A. M. A.*, Sept. 22, 1917, p. 973. Rhamy mixed fresh guinea-pig serum with a sterile 10% solution of sodium acetate in physiologic sodium chlorid solution in the proportion of 4:6. Hammerschmidt confirms that by this method complement can be preserved for at least ten days (possibly longer) without loss of strength.—J. Hammerschmidt, *Muench. Med. Woch. Schr.*, 67, 1382 (1920); *Jour. A. M. A.*, 76, 973 (1921).

✣

Fibrin and Serum as a Culture Medium for Tissues.—A technic is described by which a medium composed of fibrinogen suspension, serum, and embryo juice may be made. Fibroblasts grew in this medium about as well as in plasma and embryo juice. A strain of connective tissue remained practically as active as the control for several passages.—Albert H. Ebeling, *Jour. Exp. Med.*, 33, 641, (1921).

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Increase of Blood Uric Acid in the Toxemias of Pregnancy.—In the blood of patients with eclampsia, hyperemesis gravidarum, and with the symptoms of pre-eclamptic toxemia together with arterial hypertension, the uric acid is markedly increased. Delivery and recovery from the symptoms are associated with a gradual return of the uric acid in the blood to its normal amount. Arterial hypertension in pregnancy unassociated with toxic symptoms is not unaccompanied by uric acid retention. The toxic vomiting of pregnancy is associated with a marked increase of the uric acid in the blood, whereas the nervous or physiologic vomiting is not. It seems possible, therefore, to differentiate these conditions by quantitative estimations of the uric acid of the blood.—J. Lisle Williams, *Jour. A. M. A.*, 76, 1297, (1921).